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Ontario. Legislative Assembly

SESSIONAL PAPERS

(56)

VOLUME XXXVI.—PART VIII.

SECOND SESSION OF TENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

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SESSION 1904.

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LIST OF SESSIONAL PAPERS.

ARRANGED ALPHABETICALLY.

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Accounts, Public	1	*Printed.*
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Algoma Central and Hudson Bay Railway. Papers *in re* guarantee	85	*Printed.*
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Archives, Report	48	"
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No. 2 . . . Estimates for the service of the Province until the Estimates of the year are finally passed. Presented to the Legislature, 28th January, 1904. *Not Printed.* Estimates for the year 1904. Presented to the Legislature, 5th February, 1904. *Printed.* Estimates for the service of the Province until the Estimates of the year are finally passed. Presented to the Legislature, 29th March, 1904. *Not Printed.* Estimates (Supplementary) for the year 1904. Presented to the Legislature, 23rd April, 1904. *Printed.*

No. 3 . . . Report of the Commissioner of Crown Lands for the year 1903 Presented to the Legislature, 14th March, 1904. *Printed.*

No. 4 . . . Report of the Clerk of Forestry for the year 1903. Presented to the Legislature, 7th April, 1904. *Printed.*

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No. 7 . . Report of the Commissioner of Public Works for the year 1903. Presented to the Legislature, 22nd February, 1904. *Printed.*

No. 8 . . . Report of the Inspectors of Factories for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 9 . . . Report relating to the registration of Births, Marriages and Deaths for the year 1902. Presented to the Legislature, 4th February, 1904. *Printed.*

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No. 11 . . Loan Corporations. Statements by Building Societies, Loan and other Companies, for the year 1903. Presented to the Legislature, 7th April, 1904. *Printed.*

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No. 13 . . Auditors' Report to the Board of Trustees, University of Toronto, on Capital and Income Accounts, for the year ending 30th June, 1903. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 14 . . Report of the Ontario Agricultural College and Experimental Farm, for the year 1903. Presented to the Legislature, 30th March, 1904. *Printed.*

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No. 15 . . Report of the Ontario Agricultural and Experimental Union of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 16 . . Report of the Fruit Growers' Association of the Province, for the year 1903. Presented to the Legislature, 15th April, 1903. *Printed.*

No. 17 . . Report of the Fruit Experiment Stations of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed*

No. 18 . . Report of the Inspector of Fumigation Appliances of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 19 . . Report of the Entomological Society, for the year 1903. Presented to the Legislature, 14th March, 1904. *Printed.*

No. 20 . . Report of the Bee-Keepers' Associations of the Province, for the year 1903 Presented to the Legislature, 15th April, 1904. *Printed.*

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No. 21 . . Hand-book for the use of Women's Institutes in Ontario. Presented to the Legislature, 10th February, 1904. *Printed for distribution only.*

No. 22 . . Reports of the Dairymen's Associations of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 23 . . Reports of the Live Stock Associations of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 24 . . Report of the Registrar of Live Stock of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 25 . . Report of the Farmers' Institutes of the Province, for the year 1903. Presented to the Legislature, 10th February, 1904. *Printed.*

No. 26 . . Report of Ontario Fairs and Exhibitions of the Province, for the year 1903. Presented to the Legislature, 10th February, 1904. *Printed.*

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No. 27 . . Report of the Bureau of Industries of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 28 . . Report of the Commissioner of Highways, for the year 1903. Presented to the Legislature, 7th March, 1904. *Printed.*

No. 29 . . Report of the Bureau of Labour, for the year 1903. Presented to the Legislature, 24th March, 1904. *Printed.*

No. 30 . . Report of the Ontario Game Commission, for the year 1903. Presented to the Legislature, 26th February, 1904. *Printed.*

No. 31 . . Report of the Department of Fisheries, for the year 1903. Presented to the Legislature, 5th April, 1904. *Printed.*

No. 32 . . Report of the Temiskaming and Northern Ontario Railway Commission, for the year 1903. Presented to the Legislature, 10th February, 1904. *Printed.*

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No. 33 . . Report of the Inspector of Division Courts, for the year 1903. Presented to the Legislature, 11th February, 1904. *Printed.*

No. 34 . . Report of the Inspector of Legal Offices, for the year 1903. Presented to the Legislature, 14th April, 1904. *Printed.*

No. 35 . . Report of the Inspector of Registry Offices, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 36 . . Report of the Provincial Board of Health, for the year 1903. Presented to the Legislature, 15th February, 1904. *Printed.*

No. 37 . . Report of the Secretary and Registrar of the Province, for the year 1903. Presented to the Legislature, 14th March, 1904. *Printed.*

No. 38 . . Report upon the Lunatic and Idiot Asylums of the Province, for the year ending 30th September, 1903. Presented to the Legislature, 26th February, 1904. *Printed.*

No. 39 . . Report upon the Prisons and Reformatories of the Province, for the year ending 30th September, 1903. Presented to the Legislature, 24th March, 1904. *Printed.*

No. 40 . . Report upon the Hospitals and Charities of the Province, for the year ending 30th September, 1903. Presented to the Legislature, 30th March, 1904. *Printed.*

No. 41 . . Report upon the Institution for the Education of the Blind, Brantford. for the year ending 30th September, 1903. Presented to the Legislature, 8th February, 1904. *Printed.*

No. 42 . . Report upon the Institution for the Education of the Deaf and Dumb, Belleville, for the year ending 30th September, 1903. Presented to the Legislature, 8th February, 1904. *Printed.*

No. 43 . . Report of Superintendent. Neglected and Dependent Children of Ontario, for the year 1903. Presented to the Legislature, 22nd February, 1904. *Printed.*

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No. 44 . . Report upon the Inspection of Liquor Licenses, for the year 1903. Presented to the Legislature, 11th March, 1904. *Printed.*

No. 45 . . Report of the Provincial Municipal Auditor for the year 1903. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 46 . . Return from the Records of the several Elections in the Electoral Divisions of Muskoka, Sault Ste. Marie and North Renfrew since the General Elections of May 29th, 1902, shewing: (1) The number of Votes polled for each candidate in the Electoral District in which there was a contest; (2) The majority whereby each successful Candidate was returned; (3) The total number of Votes polled in each District; (4) The number of Votes remaining unpolled; (5) The number of names on the Voters' Lists in each District; (6) The population of each District as shewn by the last census. Presented to the Legislature, 21st January, 1904. *Printed.*

No. 47 . . Report upon the state of the Library. Presented to the Legislature 14th January, 1904. *Not printed.*

No. 48 . . Report of the Archivist, Ontario, for the year 1903. Presented to the Legislature, 14th April, 1904. *Printed.*

No. 49 . . Copy of an Order in Council advising that the tender of the Riordon Paper Mills, Limited, for the supply of Paper to the Province, for the ensuing five years, be accepted. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 50 . . Copy of an Order in Council in accordance with the provisions of section 9 of the Act, respecting the Education Department. Presented to the Legislature, 4th February, 1904. *Not printed.*

No. 51 . . Copy of an Order in Council, advising that the Agreement for renewal of Contract between Warwick Brothers and Rutter, with reference to the Printing and Binding for the Province, be approved. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 52 . . Copy of an Order in Council, respecting the commutation of the Surrogate Court Fees of the County of Huron. Presented to the Legislature, 8th February, 1904. *Not printed.*

No. 53 . . Copy of an Order in Council, respecting the commutation of Surrogate Court Fees of the County of Bruce. Presented to the Legislature 4th February, 1904. *Not printed.*

No. 54 . . Copy of an Order in Council, respecting the commutation of the Surrogate Court Fees of the Counties of York and Wentworth. Presented to the Legislature, 4th February, 1904. *Not printed.*

No. 55 . . Return to an Order of the House of the tenth day of June, 1903, for a Return of copies of all correspondence between the Government, or any member or department thereof, and any other person or persons, respecting the establishment of a Reformatory in the County of Oxford. Presented to the Legislature, 4th February, 1904. Mr. *Sutherland. Not printed.*

No. 56 . . Return to an Order of the House of the fourth day of June, 1903, for a Return of copies of all correspondence, papers, documents, decisions and memoranda in any way relating to the Mining Locations H.W.696, H.W.697, H.W.698 and H.W. 705, and particularly as to the southerly part of H.W. 697, containing thirteen acres, granted to one Gideon Larivière, which locations, are situate on, or near the North Pay of Sturgeon Lake in the District of Thunder Bay. Presented to the Legislature, 4th February, 1904. Mr. *St. John. Not printed.*

No. 57 . . Return to an Order of the House, of the twelfth day of June, 1903, for a Return.—similar to that ordered by the British House of Commons on the 25th day of June, 1902, of reproductive undertakings operated by Municipal Boroughs in Great Britain—respecting waterworks, electric lighting plants, gas works and other public utilities operated by Municipalities in the Province of Ontario, also the rates charged the consumers in the various Municipalities of the Province for water, gas and electric lighting. Presented to the Legislature, 4th February, 1904. Mr. *Preston (Brant). Printed.*

No. 58 . . Return to an Order of the House, of the fourth day of June, 1903, for a Return of copies of all correspondence between the Minister, or Commissioner of Public Works, or Fisheries, or other officer, or *employe*, of or under them, or either the Departments of Public Works, or Fisheries, and any other person or persons, and also any order or directions, or papers, or entries respecting the

granting of licenses for pound net fishing, east of a line running from Cape Hurd to the mouth of the Spanish River, during the years 1899, 1900, 1901 and 1902, or either or any of them. Also, copies of all such licenses granted during the above years, or either, or any of them. Presented to the Legislature, 4th February, 1904. Mr. *Smyth*. *Not printed.*

No. 59 . . Return to an Order of the House, of the 8th day of June, 1903, for a Return of all copies of all forms of application or subscription for terminating stock and of all forms of certificates of such stock used by Loan Corporations doing business in the Province. Presented to the Legislature, 4th February, 1904. Mr. *Downey*. *Not printed.*

No. 60 . . Return to an Order of the House, of the fourth day of June, 1903, for a Return of copies of all correspondence, between the Metropolitan Power Company, or their Solicitors, and the Government for a grant of land under the waters of the Ottawa River, and all papers in connection therewith. Presented to the Legislature, 4th February, 1904. Mr. *Matheson*. *Not printed.*

No. 61 . . Copy of an Order in Council and Report of Registrar of Loan Corporations in the matter of the Canadian Co-operative Alliance. Presented to the Legislature, 5th February, 1904. *Not printed.*

No. 62 . . Copy of an Order in Council respecting Surrogate Court Fees to be paid to His Honour Judge Holt. Presented to the Legislature, 10th February, 1904. *Not printed.*

No. 63 . . Copy of an Order in Council respecting Surrogate Court Fees to be paid to His Honour Judge Jamieson. Presented to the Legislature, 10th February, 1904. *Not printed.*

No. 64 . . General Rules and Orders made by the Court of Appeal for Ontario respecting the trial of Election Petitions pursuant to the Controverted Elections Act, R.S.O., 1897, cap. 11, and amending Acts. Presented to the Legislature, 12th February, 1904. *Printed. For distribution only.*

No. 65 . . Return to an Order of the House, of the eighth day of February, 1904, for a Return shewing the names of all persons at Sault Ste, Marie, or elsewhere, who have been paid by the Government under the decision, or determination, to pay the wages of workmen at Sault Ste. Marie, and showing also the amount paid in each case and the nature of the claim in each case. Presented to the Legislature, 15th February, 1904. Mr. *Whithey*, *Printed.*

No. 66 . . Return to an Order of the House, of the tenth day of February, 1904 for a Return shewing the number of students admitted to (a) the Normal Schools of the Province since September, 1903. (b) How many (if any) of such students, prior to admission, taught less than twelve months in a Public School and (c) How many (if any) did not attend a Model School course and secured a certificate of competency therefrom. Presented to the Legislature, 16th February, 1904. Mr. *Hoyle*. *Not printed.*

No. 67.. Copy of an Order in Council, commuting the fees of F. H. MacDonald, Local Master at St. Catharines. Presented to the Legislature, 18th February, 1904. *Not printed.*

No. 68... Return to an Order of the House of the twenty sixth day of June, 1903, for a Return shewing:—1. The total area of Crown Lands under timber License. 2. The total area of Crown Lands under timber License in arrears. 3. The number of timber Licenses in arrear, their locations, respective areas, the names of those persons so in arrears, and the amounts that each of such persons are in arrear, and for what respectively. 4. The number of timber Licenses cancelled since and including 1891, and the number of acres of Licenses so cancelled. 5. The nature and extent of the securities (if any) held by the Government, for payment of such areas, and, the names of the persons so giving security. 6. The number of timber Limits disposed of otherwise than by Public Auction, since and including the year 1891, specifying the details thereof, as to time, place, person and prices respectively. 7. The number of pieces of saw-logs cut under License in the Province of Ontario, each year since and including 1891; the aggregate quantity of lumber, board measure, returned to the Crown Lands Department for each of the said years since and including 1891; the amount of Crown dues collected for each of the said years from the lumber cut, giving the quantity for each separate price charged for dues. 8. The number of pieces of waney or board timber cut under license in each of the said years and the aggregate quantity of cubic feet and the amount of Crown dues collected on the same. 9. The number of pieces of square timber cut and the quantity of cubic feet returned as contained in same and the amount collected for each of the said years thereon, for Crown dues. Presented to the Legislature 18th February, 1904, Mr. *St. John.* *Printed.*

No. 69.. Return to an Order of the House of the fifteenth day of February, 1904, for a Return of copies of all complaints received by the License Department against W. S. Cowan, formerly inspector of licenses for South Wellington; also, for a copy of the report of the investigation into such complaints, including the evidence; also, for a copy of the report of the Inspector who investigated the complaints, and also, for a copy of all correspondence touching the dismissal of the said W. S. Cowan. Presented to the Legislature, 22nd February, 1904. Mr. *Downey.* *Not printed.*

No. 70.. Return to an Order of the House of the nineteenth day of February, 1904, for a Return of copies of all correspondence between the Inspector of Prisons and Charities, or other official of the Government, and the County of Ontario, having reference to the salary of the County Gaoler. Presented to the Legislature 22nd February, 1904. Mr. *Hoyle.* *Not printed.*

No. 71.. Copy of Memorandum of Agreement between His Majesty, represented by the Commissioner of Crown Lands and Edward Wellington Backus, of the City of Minneapolis. Presented to the Legislature 23rd February, 1904. *Not printed.*

No. 72.. Return to an Order of the House of the twelfth day of February, 1904, for a Return, shewing in the same detail as in the Public Accounts of the Province, all expenditures up to 31st December, 1903, on account of the Temiskaming and Northern Ontario Railway, giving in detail the amount paid, to whom and on what account. And, in the case of the payments to the contractors for the building of the road—shewing all the quantities of rock and other material moved; masonry constructed and generally, all quantities on which payments are based, with the amount paid therefor upon each section of road. Presented to the Legislature, 29th February, 1904. Mr. *Matheson. Printed.*

No. 73.. Return to an Order of the House of the nineteenth day of February 1904, for a Return of copies of all correspondence between the Government, or any officials thereof, and any person or persons, regarding the establishment of Savings Banks in connection with the Schools of the Province. Presented to the Legislature, 29th February, 1904. Mr. *Preston (Brant.) Not printed.*

No. 74.. Return to an Address to His Honour the Lieutenant-Governor of the twenty-second day of February, 1904, praying that he will cause to be laid before this House, a Return of copies of all Orders in Council with reference to the payment of *employes* at Sault Ste. Marie, together with copies of all correspondence previous to, after and in any way relating to such payments. Presented to the Legislature, 1st March, 1904. Mr. *Whitney. Printed.*

No. 75 .. Return to an Order of the House of the twenty-sixth day of February, 1904, for a Return of copies of all correspondence with the Government, or other person, relating to the appointment of one Kelly, as constable, or peace officer, in and about Killarney, together with copies of all correspondence between the Government and one Charles Noble in connection therewith. Presented to the Legislature, 1st March, 1904. Mr. Gamey. *Not printed.*

No. 76 .. Return to an Order of the House of the twenty-fourth day of February, 1904, for a Return of copies of all correspondence, papers and pay sheets, between the Government, or any member or official thereof, in connection with the expenditure of all moneys expended last year, on Colonization Roads in the County of Addington. Presented to the Legislature, 1st March, 1904. Mr. Reid. *Not printed.*

No. 77 .. Return to an Order of the House of the twelfth day of February, 1904, for a Return of copies of all correspondence between the Government or any member, or official thereof, or persons on its behalf, and any other person or persons in connection with the appointment of William Coats, as Registrar of the County of Huron. Presented to the Legislature, 7th March, 1904. Mr. Eilber. *Not printed.*

No. 78 .. Statement of distribution of Revised and Sessional Statutes up to 31st December, 1903. Presented to the Legislature, 9th March, 1904. *Not printed.*

No. 79 . . Return to an Order of the House of the twenty-ninth day of February 1904, for a Return shewing: 1. The amount of money paid as, Railway Subsidies from 1867 up to and inclusive of 1903. 2. The name of each Railway and the amount paid as Subsidy thereto. 3. The amount of money voted for Railway Subsidies, but not yet earned. 4. The amounts in acres voted and set apart as Land Grants, during the same period. 5. The names of all Railways which have earned the apportionment of land so set apart. 6. The amount in process of being earned. Presented to the Legislature, 9th March, 1904. Mr. Preston, (Durham.) *Not printed.*

No. 80 . . Return to an Order of the House of the Seventh day of March, 1904, for a Return, shewing the number of Saloon Licenses in the different Cities of the Province during the years 1901 and 1903. Also, the number of Saloon Licenses in the Towns of the Province, during the same period. Also, the number of Wholesale Licenses granted in rural municipalities, in the Province, during the same, period. Presented to the Legislature, 10th March, 1904. Mr. *Barr. Not printed.*

No. 81 . . Return to an Order of the House of the Eleventh day of March, 1904 for a Return of copies of all correspondence, between the Government, or any official thereof, and the President of the Children's Aid Society of Brockville, or any other person or persons, in reference to the arrest and imprisonment of certain young lads in 1902, 1903 and 1904. Presented to the Legislature, 18th March, 1904. Mr. *Graham. Not printed.*

No. 82 . . Return to an Address to His Honour, the Lieutenant-Governor, of the fourth day of March, 1904, praying that he will cause to be laid before this House, a copy of all Orders-in-Council, authorizing or permitting an increase in the capital stock of the Peoples' Life Insurance Company, during the last two years, together with copies of all correspondence in any way relating thereto. Presented to the Legislature, 24th March, 1904. Mr. *Gamey. Not printed.*

No. 83 . . Return to an Order of the House, of the twenty-fifth day of March, 1904, for a Return shewing the names of all persons convicted for violation of any of the provisions of the Liquor License Act in the County of Carleton during the years 1901, 1902 and 1903, with the amounts of fines and costs imposed in each case respectively and showing, as well, the particular offence of which they were convicted and dates of conviction. Presented to the Legislature, 29th March, 1904. Mr. *Kidd. Not printed.*

No. 84 . . Return to an Order of the House, of the twenty-fifth day of March, 1904, for a Return, in detail of all payment made by the Commissioners of the Queen Victoria Niagara Falls Park, for the year 1903. Presented to the Legislature, 29th March, 1904. Mr. *Jessop. Not printed.*

No. 85 . . Return to Orders of the House, of the fourteenth, twenty-first (two orders), and twenty-fifth days of March, 1904, for Returns shewing :—

1. The names of the various companies included in the Consolidated Lake Superior Companies, which the Government proposes to aid by the $2,000,000 guarantee. 2. The names of the secured creditors of each company and the amount of the claim of each and the security held by each. 3. The names of the unsecured creditors of each company and the amount of claim of each. 4. Shewing what portion of the Algoma Central Railway is already completed, how much partly constructed and what construction work has been done on the part incomplete. 5. Shewing what portion of the road has been operated and what net earnings, if any, it has shewn. 6. The names of the vessels which it is proposed to give the Province as security, with statement shewing what these vessels have earned, net, in the hands of the Companies. Also, shewing full particulars of all claims, charges, judgments and priorities chargeable against the Superior Consolidated Companies and the Algoma Central Railway; the names of all the creditors and the nature and amount of their respective claims, and particulars of all assets on which are based, and subject to which it is the intention of the Government to guarantee the sum of $2,000,000 to such companies as embodied in the Bill introduced to this House, before the second reading of such Bill. Also, shewing: 1. What lands and securities are governed by the Lien of Messieurs James Conmee, M.P.P., and Charles M Bowman, M.P.P., against the Algoma Central and Hudson Bay Railway Company, for upwards of $400,000, dated on or about the 22nd day of September, 1903. 2. Whether the judgment of James Conmee, M.P.P., and Charles M. Bowman, M.P.P., against the Algoma Central and Hudson Bay Railway Company for upwards of $400,000, and dated on or about the 12th day of October, 1903, is still a charge on the assets of this company. 3. And shewing the amount of the said Judgment at the present time. And also, shewing the names of the allied industries referred to in section 1 of Cill (No. 129), Respecting Aid to the Algoma Central and Hudson Bay Railway. 2. A copy of the Mortgage referred to in subsection 1 of said section 1. 3. A copy of the Mortgage referred to in subsection 2 of said section 1. 4. A copy of the Promissory Note referred to in subsection 3 of said section 1. 5. A copy of the Stock Certificates of the Stock referred to in subsections 4 and 5 of said section 1. 6. A copy of the Trust Deed, or any draft thereof, referred to in section 2. 7. A copy of the Guaranty referred to in section 3. 8. Shewing what amount is referred to in subsection 3 of section 4. 9. How many Directors are provided for the re-organized Company. 10. A copy of the Deed, or any draft thereof, referred to in subsection 10 of section 4. 11 A copy of the plan of re-organization referred to in subsection 11 of section 4. Presented to the Legislature, 11th April, 1904. Messieurs *Hanna* and *Pyne*. *Printed.*

No. 86 . . Return to an Order of the House, of the sixteenth day of March, 1904, for a Return shewing the copyrighted selections and extracts from authors, used in the authorized text-books of the Public Schools, indicating in each case, the pages and the names of the persons or company controlling the copyrights. Presented to the Legislature, 7th April, 1904. Mr. *Nesbitt*. *Not printed.*

No. 87 . . Return to an Order of the House, of the second day of March, 1904, for a Return, shewing all payments under the San Jose Scale Act, as follows:—1st. Amount paid to the owners of trees destroyed. 2nd. Amount paid to officers of the Province for enforcing the Act, and 3rd. In what Counties the trees were destroyed. Presented to the Legislature, 7th April, 1904. Mr. *Lee. Not printed.*

No. 88 . . Return to an Order of the House of the fourteenth day of March, 1904, for a Return, giving copies of all correspondence between any person or official, on behalf of the University of Toronto and any member of the Government, with reference to the construction of a Physical Laboratory for the University. Also, copies of the Statute of the Senate of the University providing for the establishment of a Department of Forestry in the University, together with copies of all correspondence relating to the establishment of such Department. Presented to the Legislature, 7th April, 1904. Mr. *Whitney. Not printed.*

No. 89 . . Return to an Order of the House of the sixteenth day of March, 1904, for a Return of copies of all correspondence between the Government, or any Official thereof, and any person or persons, regarding the issue of licenses for the use of pound nets on Lake Nipissing. Presented to the Legislature, 8th April, 1904. Mr. *Little (Cardwell.) Not printed.*

No. 90 . . Return to an Order of the House of the Eleventh day of March, 1904, for a Return of copies of all correspondence between the Government, or any official thereof, and any other party or parties regarding the issue of pound-net fishing licenses in 1902 and 1903 in the waters between Killarney and Little Current, known as the North Channel. Presented to the Legislature 8th April, 1904. Mr. *Gamey. Not printed.*

No. 91 . . Return to an Order of the House of the sixteenth day of March, 1904, for a Return giving the names of Public School Inspectors since 1870, in Ontario. Also, the class of certificates they hold, or held, and shewing as well, the standing which each one obtained on their respective examinations entitling them to act as Inspectors of Public Schools. Presented to the Legislature, 20th April, 1904. Mr. *Gamey. Not printed.*

No. 92 . . Return to an Order of the House of the twenty-fifth day of March, 1904, for a Return of papers and all correspondence in connection with the issue of Patent for the south half of lot No. 8 in the 4th Concession of the Township of Hutton, in the District of Nipissing. Presented to the Legislature, 23rd April, 1904. Mr. *Matheson. Not printed.*

No. 93 . . Return to an Address to His Honour the Lieutenant-Governor of the twenty-second day of April, 1904, praying that he will cause to be laid before this House, a Return of a copy of the Judgment of the Judicial Committee of the Privy Council in the case of the Ontario Mining Company *et al., vs.* Seybold *et al.*, together with a

copy of the agreement between Counsel for the Dominion of Canada and the Province of Ontario arising out of the argument of the said Appeal. Presented to the Legislature 23rd April, 1904. Mr. *Cameron (Huron.)* *Printed.*

No. 94 . . Return to an Address to His Honour the Lieutenant-Governor, of the twenty-second day of April, 1904, praying that he will cause to laid before the House, a Return of a copy of the Judgment of the Court of Appeal for Ontario, in answer to certain questions submitted, involving the validity of legislation by the Province respecting the profanation of the Lord's Day, and also the notes of argument and judgment of the Judicial Committee of the Privy Council upon the appeals thereto. Presented to the Legislature 23rd April, 1904. Mr. *Little (Norfolk.)* *Printed.*

ANNUAL REPORT

OF THE

BUREAU OF INDUSTRIES

FOR THE

PROVINCE OF ONTARIO

1903.

PART I.—AGRICULTURAL STATISTICS.

PART II.—CHATTEL MORTGAGES.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

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THE LEGISLATIVE ASSEMBLY OF ONTARIO

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Ontario Bureau of Industries.

PART I.—AGRICULTURAL STATISTICS.

THE WEATHER.

Figures or facts relating to temperature, precipitation of rain and snow and sunshine are of special interest to all who would study crop returns; for no matter what may be the character of the soil, or the nature of the tillage, climatic conditions exercise practically a controlling influence on the successful growth of plant life.

Temperature. The following table shows the average temperature of the Province for each of the six months, April-September inclusive—practically the growing season—for the past ten years, and also the average for twenty-two years, 1882-1903:

Month.	1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1882-1903
	°	°	°	°	°	°	°	°	°	°	°
January	18.5	18.7	19.0	21.9	18.7	20.2	19.5	18.4	17.3	23.1	17.8
February	21.8	18.1	13.0	17.1	15.2	22.0	21.8	19.2	14.5	16.9	18.1
March	37.4	35.0	26.9	20.5	25.8	35.6	29.0	21.2	21.5	34.9	26.4
April	43.3	43.6	45.0	44.8	44.5	42.1	42.7	46.3	43.3	44.3	41.9
May	56.8	53.2	54.6	54.6	55.7	55.5	52.9	60.1	56.9	53.7	53.9
June	60.8	59.2	65.8	64.1	64.8	65.6	60.9	64.8	68.0	66.1	63.9
July	67.3	68.6	71.9	68.2	67.5	70.2	71.9	68-8	65.5	69.1	67.9
August	62.4	63.5	67.5	70.9	68.5	67.7	64.2	67.2	65.3	64.0	65.6
September	59.0	59.0	60.1	62.3	56.2	61.8	60.8	56.8	60.5	61.1	58.7
October	49.2	46.3	48.5	55.2	50.0	48.7	50.1	43.4	41.4	48.8	46.8
November	32.3	41.0	31.9	35.3	38.0	34.9	34.9	37.8	34.5	31.6	34.9
December	17.7	20.9	22.7	24.7	25.1	22.8	24.6	24.1	25.8	27.7	23.8
Annual mean	43.9	43.9	43.9	45.0	44.2	45.6	44.4	44.0	42.9	45.1	43.3
Mean for six months, April to September	58.3	57.9	60.8	60.8	59.5	60.5	58.9	60.7	59.9	59.7	58.6

The mean annual temperature was 43.9 degrees, which is the same as that of the two years immediately preceding, but higher than that for the years 1882-1903. The mean for the six months, April-September, was 58.3 degrees, or .3 degrees below the average for the twenty-two years. Each of the first five months of the year experienced a higher temperature than their respective averages, more especially in the case of March. October also had a higher mean temperature than usual. On the other hand, June, August and November were somewhat lower in temperature than ordinarily, while December was abnormally cold, the mean temperature for the month being 17.7 degrees, compared with 23.8 degrees for that month in the twenty-two years. July and September were normal in temperature.

Precipitation. The fall of both rain and snow is given in the following table for ten years, together with the average for the twenty-two years, 1882-1903. An inch of water is the equivalent of ten inches of snow:

Year.	November.		December.		January.		February.		March.		Total for five months.	
	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1903	1.60	4.0	1.06	14.6	0.78	19.8	1.31	13.6	1.92	1.7	6.67	53.7
1902	1.25	8.0	1.85	14.2	0.10	20.4	0.56	12.1	2.34	2.5	6.10	57.2
1901	2.99	10.4	0.51	8.6	0.58	18.8	R	17.6	1.60	13.1	5.68	68.5
1900	1.13	1.0	2.15	14.5	0.72	15.8	1.68	26.8	0.53	18.8	6.21	76.9
1899	1.67	9.6	0.74	24.6	1.50	13.2	0.76	8.0	1.78	22.1	6.45	77.5
1898	3.40	8.9	1.73	17.5	1.47	18.2	0.60	18.9	2.42	1.0	9.62	64.5
1897	2.51	6.2	0.37	9.6	1.15	17.3	0.89	14.1	1.52	12.7	6.44	59.9
1896	2.47	7.7	2.22	13.2	0.65	17.1	0.46	24.5	0.74	11.4	6.54	73.9
1895	0.78	11.4	1.49	6.6	0.77	31.3	0.08	12.0	0.41	10.8	3.53	72.1
1894	1.97	9.9	1.85	26.2	0.91	14.0	0.59	15.1	1.15	4.8	6.47	70.0
1882-1903	2.10	8.3	1.32	14.9	0.97	20.2	0.92	16.4	1.19	11.0	6.50	70.8

The amount of rainfall in the five months was 6.67 inches, as against an average of 6.50 inches for 1882-1903, while the snowfall was 53.7 inches, or 17.1 inches less than the average for the twenty-two years. The most striking feature of the table is the comparatively slight snowfall in the months of November and March.

The six months, April-September, however, comprise what is regarded as the growing season for most crops, and the following table gives the rainfall of these months for the last ten years, and also the average for the twenty-two years, 1882-1903 :

Months.	1903	1902	1901	1900	1899	1898	1897	1896	1895	1891	1882-1903
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
April	2.32	2.12	2.26	1.44	1.10	1.45	2.52	1.26	1.49	0.99	1.62
May	1.82	2.44	3.67	2.03	3.43	2.43	3.38	2.10	2.36	5.72	2.81
June	3.83	3.92	2.14	2.83	2.46	2.83	2.83	2.39	1.37	2.32	2.87
July	4.09	5.49	3.90	3.96	2.78	1.11	5.36	2.79	2.02	1.72	2.88
August	3.77	2.02	2.78	2.15	0.81	2.64	2.62	2.86	2.81	0.84	2.55
September	2.21	3.53	2.78	2.73	3.72	2.94	0.83	4.47	2.67	3.73	2.65
Total for six months.	18.04	19.52	17.53	15.14	14.30	13.40	17.54	15.87	12.72	15.32	15.38

The rainfall for the six growing months totalled 18.04 inches, which was 2.66 inches more than the average for the twenty-two years. May and September had less precipitation than usual, compared with their respective averages, but the other four months, more especially July and August, made up the large increase in the rainfall.

Sunshine. In the following table the averages of sunshine are, as usual, derived from the records of the weather stations at Woodstock, Toronto, Barrie, Lindsay, and Kingston :

Months.	Sun above horizon	1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1882-1903
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs,	hrs.	hrs.
January	285.7	54.4	84.1	59.7	77.1	90.8	76.2	70.4	52.3	73.0	74.5	68.8
February	291.4	90.9	127.7	115.7	109.8	112.8	69.3	93.7	104.0	110.2	124.2	96.2
March	369.9	99.8	138.8	96.9	161.4	133.2	157.5	148.3	188.1	179.6	127.5	145.7
April	406.4	184.7	144.1	154.5	214.0	223.2	230.2	174.2	180.3	195.1	212.9	190.4
May	461.1	284.1	207.8	177.3	247.9	210.9	196.3	196.9	262.1	252.1	181.7	214.6
June	465.7	196.0	199.3	266.5	305.3	278.2	237.1	212.8	302.1	286.3	244.6	247.6
July	470.9	261.2	241.5	268.2	266.3	302.2	307.8	258.7	237.8	232.4	276.2	270.6
August	434.5	180.6	245.2	208.0	271.4	262.1	225.2	262.4	262.6	228.0	207.3	238.2
September	376.3	203.7	149.3	199.7	190.0	164.4	202.4	237.1	168.0	194.2	156.4	191.8
October	340.2	152.4	119.1	163.0	164.0	14107	118.2	161.0	135.0	149.0	129.4	134.9
November	286.9	114.0	76.6	80.3	82.4	78.6	89.0	60.8	69.8	79.3	64.7	70.6
December	274.3	59.5	71.0	62.9	46.6	60.2	56.6	40.6	80.8	57.1	65.5	57.6
Total for the year	4463.3	1881.3	1799.5	1852.7	2136.2	2058.3	1965.8	1923.9	2045.4	2036.3	1864.9	1927.0
Total for 6 months, April-Sept.	2614.9	1310.3	1187.2	1274.2	1494.9	1441.0	1399.0	1349.1	1412.9	1388.1	1279.1	1353.2

During the twelve months there were 1,881.3 hours of sunshine registered, which was 45.7 hours less than the average for the twenty-two years ; while in the six months, April-September, there were 1,310.3 hours registered, or 42.9 hours less than the average for the same period. Of the first eight months of the year, May was the only one showing an increase in its average record of sunshine, while each of the last four months of the year had more sunshine than usual. May and November, however, were the only months having more sunshine to their credit (compared with their respective records) in 1903 than in any other year in the table.

VEGETATION.

Notwithstanding the fact that the snow disappeared early, and that warm weather in March gave promise of advanced vegetation, the cold and unusually dry weather

prevailing in April retarded growth to such a degree that conditions were only about normal on the first of May, and relatively backward compared with the earlier prospects of the season.

Spring Seeding. The May returns were thus summarized: "The bulk of the reports are to the effect that seeding was well advanced by the end of April, many being through with the work, while a few were only beginning. While some complain of the soil being hard and unsuitable for spring work, a much larger number describe the seed-bed as being in the best possible condition. The least favorable reports concerning the extent and quality of seeding came from the counties forming the Niagara peninsula. The cool weather existing during the month of April, together with the very light rainfall, hindered the sprouting of the seed to a remarkable degree, and as correspondents wrote on the first of May it was almost impossible to measure the success of the "catch," as some of the seed was lying dormant waiting for a warm shower. Several correspondents point out the fact that the dry and comparatively cool weather prevailing during seeding and spring operations generally, made the work easy upon the horses."

THE GRAIN CROPS.

Fall Wheat The following description of the fall wheat planted in 1902 appeared in the November bulletin of that year:" Reports vary greatly, even in the same counties, as to the area of fall wheat sown this fall as compared with last year's acreage. In both the Lake Erie and West Midland districts the increases and decreases will about balance each other; but each of the other groups will probably show a slight decrease in acreage. The counties forming the Niagara peninsula, facing either lake, report a decided increase in area of fall wheat over that of last year. In many sections of the Province the rain delayed harvesting, and this in turn kept back threshing and other operations, which largely accounts for the fact that the putting in of fall wheat this year will be a week or two later on the average than ordinarily; although many purposely delayed putting in the crop in order to avoid the Hessian fly. This pest appears to have almost entirely disappeared, not one correspondent in fifty reporting it, while last fall its presence was commonly reported. The bulk of the crop was got in about the middle of September, although dates of sowing ranged from the last week in August to the 20th October. Except on clay land, the seed-bed was in good condition, and as correspondents wrote the new crop of fall wheat was looking most promising, being healthy in color and vigorous-looking generally, although not having as much top as is usually seen at the same date. Dawson's Golden Chaff is the variety most largely grown, with Clawson a fair second, Genessee Giant, Michigan, Amber, and Manchester also showing up fairly, with about forty other varieties scattering."

"Reports just to hand," said the May bulletin, "are practically unanimous regarding the general condition of the crop. In most instances it has come through the winter unharmed, only a few complaints being made of injury from snow or ice, except in some fence forners here and there. A few correspondents make mention of patchy spots, but it is safe to say that much less fall wheat will be plowed up this spring than is usually done, and no one portion of the Province appears to have been more favored than another in this regard. The cold nights, and dry, windy days of the greater part of April were the chief drawbacks to the crop, and caused the young fields to stand still or go back rather than to go forward. Nevertheless, only the top of the plants appear to have suffered, the roots being uninjured and vigorous and full of promise. In fact, the later returns received speak of timely rains, which have sent the crop along again in splendid shape. Taking it altogether, fall wheat may now be described as promising to be from fair to good, more especially as only the faintest mention has been made of the Hessian fly, which for the past few years has

been the scourge of the wheat fields of western and south-western Ontario. Odd mention has been made of the presence of the wire-worm, but the hurt caused by insect pests so far has been remarkably small. Several correspondents point out the well-established fact that fall wheat is doing best on well-drained land. The acreage is thought to be less than in the last year or two."

August reports were to the following effect: "Much of the fall wheat just harvested was sown a week or two later than usual, owing to the rainy weather prevailing in the early part of last fall, but this does not seem to have had any bad effect upon the general character of the crop. There was but little injury by winter-killing, and very little was plowed up in the spring. April was not favorable to the growth of the young wheat, but during the summer the crop picked up to such an extent that it turned out to be one of the best ever recorded in the Province, both as to yield and quality. While some returns fall short of an average, several instances are given where the yield ranged from 40 to 50 bushels per acre, and samples are reported going fully 63 pounds to the bushel. Much of the straw is shorter than usual, but bright. Owing to heavy rains in July, some of the wheat lodged and sprouted, but not in sufficient proportion to be a serious drawback. The Hessian fly was reported in several counties, but only to a slight extent compared with recent years. The injury from other insects, and from rust and smut, has been but trifling, and this may also be said of all the grain crops. A few complaints, however, have been made of depredations of sparrows in wheat and other cereals. The cutting of fall wheat ranged from the 10th to the 30th of July, according to locality, although at the later date the greater part of the crop was in the barn.

The favorable accounts regarding fall wheat given in the August bulletin were fully sustained by the reports received since threshing. The yield per acre was large, and the quality of the grain was, as a rule, first-class, except that a small percentage sprouted in the field during the wet weather prevailing during a portion of the harvest. Some correspondents described the grain as being well up in weight, some of it going from sixty-two to sixty-four pounds to the bushel. Taking both yield and quality into consideration, the crop of 1903 may be considered as one of the best in the history of the fall wheat in this Province.

The New Fall Wheat. The following references to the growing wheat was made in the bulletin issued in November, 1903: "There has been a greatly increased area of wheat sown this fall, more particularly in the Lake Erie district and other localities where the Hessian fly did so much injury during the previous three or four years. The seed-bed was generally reported as being in first-class condition, which gave the crop a good start, and, as correspondents wrote at the end of October, the young wheat was presenting a fine appearance in most places, although here and there some fields were showing the need of rain. While sowing ranged from the 20th August to the end of the first week of October, the bulk of the crop was put in somewhat later than usual. Some injury from the Hessian fly was reported, but not so much as in the previous three or four years. Forty varieties of fall wheat are mentioned as being sown, Dawson's Golden Chaff being the most popular, and Red Clawson coming next."

Spring Wheat. The August bulletin said: "The harvesting of all spring grains this year is about a week or so later than usual and the cutting of spring wheat was expected during the first and second weeks of August. Like fall wheat, the crop suffered from drouth in the spring, but pulled up with more favorable weather prevailing later. While rather thin on the ground in places, the heads are well filled, the grain is plump, and the average yield will be a fairly large one. There was but slight injury from insect or other pests."

November returns were favorable, as a whole, regarding fall wheat. The quality of the grain was said to be from fair to good. A few complaints were made of rust, but the crop generally could be counted as above the average, although not so good relatively as fall wheat.

The falling off in wheat growing, both in fall and spring, may be readily seen by the following statement:

	Fall Wheat. Acres.	Spring Wheat. Acres.
1899	913,954	356,721
1900	1,068,640	376,905
1901	911,587	358,048
1902	748,592	303,115
1903	665,028	248,518

Barley. The August bulletin stated: "A large acreage and a big yield fairly describes this crop. Cutting began about the 20th of July, and was expected to run a week into August. While some barley had lodged and was discolored by rain, the bulk of the crop is of the choicest quality, both in color and weight, while the average yield is one of the most generous yet reported. Most of the barley grown in Ontario is now fed to live stock on the farm, being substituted largely for peas since the latter crop has been suffering from the weevil. There was but little injury to the crop from any other source but rain."

According to the November returns there was an immense yield of barley, nearly all of it plump and of excellent feeding value, although a considerable portion of the grain was discolored by rain at harvest. However, the matter of color is not now so important as it was a few years ago, when most of the barley was raised for malting purposes.

Oats. While a few correspondents, writing on the 1st of August, reported the cutting of oats, most of the crop had yet to ripen, and harvesting was likely to continue for a couple of weeks yet. The yield was expected to be large, and the quality of the grain good. The August bulletin went on to say of oats: "As in the case of fall wheat and barley, some individual yields will be immense. The straw will be comparatively short, though otherwise of fair quality, but there has been considerable lodging, owing to the heavy rains during the past week or two. Rust and smut were complained of in a few localities, but only to a slight extent even then."

November returns regarding oats were on the whole satisfactory. The bulletin then issued said: "A large yield is reported, but while most of the crop will be of excellent quality, a portion of it is said to be rather light in weight. Some rust on late oats is complained of, the straw is hardly as long as usual, and there was also considerable "lodging" during the harvest owing to heavy rains. Notwithstanding these drawbacks, the oat crop may be listed as a success."

Peas. "It is difficult to sum up the exact situation regarding peas," the August bulletin said, "owing to the fact that for the past two or three years the flat or grass pea has been largely substituted for the common round field pea on account of the depredations of the pea weevil or 'bug,' and that this year a number of farmers have returned to the latter variety. While complaints are yet too frequent concerning the presence of the weevil, it would seem as if peas have been comparatively successful where grown, some correspondents, indeed, being quite enthusiastic over the prospects of the crop. There has also been a great growth of straw owing to frequent rains, but some mildew is reported. Some early fancy peas have been already cut, but ordinary field peas were not expected to be harvested for a week or two. While the acreage of peas is still small compared with that of a few years ago, the general outlook for the crop is more encouraging than for the past two years."

The November bulletin remarked concerning this crop: "Of late years peas have suffered greatly from the weevil or 'bug,' and the acreage in 1903 was reduced by one-half as compared with that of five years ago. During that time what is known as the flat or grass pea has been largely substituted for the common field or round pea, as the former variety was regarded as bug-proof. The grass pea, however, has failed to give

good satisfaction generally, and the round pea is again being more freely sown. While some correspondents report a good crop, many complain that the wet weather made too much straw at the expense of the pods. The result of this year's experience, taken altogether, are rather encouraging, as injury from the weevil appears to have been much less than in the previous year or two."

Beans. The growing of field beans is confined mainly to Kent and adjacent counties in the Lake Erie district. The August bulletin had the following to say concerning the crop: "There has been a great growth of stalk, the plants have blossomed profusely, and the prospects at present are most favorable for a more than average yield when the crop is gathered in the first or second week of September. In many instances beans were planted late, but aside from the effects of heavy rains in low places there has been but little complaint."

Beans were thus referred to in the November bulletin: "This crop is variously described. It suffered from rain when growing and when being pulled, and there was a tendency to run too much to straw. Not only was harvesting delayed by rain, but some of the crop was also discolored from this cause. Notwithstanding these complaints, several correspondents speak well of the crop, and its general condition may be classed as fair."

Rye Comparatively little rye is now raised for the grain, much of that which is sown being either cut green or plowed under. The crop, according to the August bulletin, was a most uneven one, both as to yield and quality. The season of harvesting rye ranged from the middle to the end of July.

November reports regarding rye were to the effect that very little of that crop had been raised for grain, but that where grown for that purpose it had done well in 1903.

Buckwheat. The acreage given to buckwheat is comparatively small, but where grown this year the crop has turned out to be a good one on the whole, accounts of both yield and quality running from "fair" to "splendid."

Corn. The August bulletin contained the following regarding corn: "This appears to be a very uneven crop this year. It was so dry at the time of planting that much of the seed failed to germinate, which made considerable replanting necessary. A number of correspondents also complain of the poor quality of seed apart from weather conditions. Crows and blackbirds were unusually troublesome when the plants had just sprouted, and cold, wet weather later on told against the growth of the crop. Notwithstanding all these drawbacks, many correspondents are of opinion that with favorable weather during the remainder of the season a fair yield will be recorded. Fodder corns were considered to be in a relatively better condition than those varieties grown from grain."

These remarks as to the unevenness of the corn crop were emphasized in the November reports. Descriptions of both yield and quality ranged from "poor" to "good." Early-planted corn did much better than that got in later. Unfortunately, the dry condition of the soil at seeding, and the poor quality of much of the seed, necessitated considerable replanting and consequently considerable late corn, some of which was soft where grown for the grain, or was caught with frost where raised for fodder or the silo. However, the greater part of the corn was well saved, as the fall was on the whole a very favorable one for the crop."

HAY AND CLOVER.

May reports were to the following effect: "Clover fields as a rule came through the winter in the same condition in which they entered it, only a comparatively small portion having been reported as heaving; and as the catch at last year's sowing was a good one, the crop faced the spring with the best prospects. The dry, cold weather of April, however, has been rather unfavorale for clover, and some correspondents complain

of the fields as looking rather brown ; but the greater part of those reporting speak of the crop as showing excellent promise, meadows having a good thick bottom even though spring growth has been backward. The prospects for clover are particularly bright in the western half of the Province."

The following reference to hay and clover appeared in the August bulletin : "April was too cold and dry for clover, and this, together with the drouth which prevailed in May, gave the crop a very poor start. Rains in the latter part of June and in the early portion of July, however, brought most meadows along in remarkably good form, with the result that the yield of hay will be above an average. Individual returns will range from three-fourths of a ton to three tons per acre. Timothy has done better than clover this year, and new meadows, as a rule, have been much ahead of old fields. The weather was very catchy during haying, and a part of the crop was caught by rain; nevertheless there has been a much larger proportion of first-class hay saved than was the case last season. Some of the hay had to be cut late on account of the scarcity of farm labor and the coming in of the fall wheat harvest, although the use of hay-loaders and other special appliances helped many farmers out. A few correspondents speak of lucerne as increasing in favor. Clover cutting began about the 4th of June, and timothy was a week or two later."

Clover Seed. The second crop of clover made vigorous growth, but in most cases ran to stalk at the expense of head. The midge was also in evidence in nearly every section of the Province, and wrought injury to clover seed variously estimated at from 25 to 75 per cent. Many fields intended for seed were cut for hay, and others were turned into pasture. While most of the reports received early in November were of a discouraging nature, some returns were to the effect that the crop of seed was first-class.

FIELD ROOTS.

Potatoes : As correspondents wrote on the 1st of August, potatoes promised to be one of the best yields for years, more or less favorable accounts coming from nearly every county in the Province. The only fear expressed was that, should the rainy weather continue, there would be a danger of loss from rot. At the time of writing, however, only a few cases of rot were reported, and these appeared to be of a local character. A number of the returns spoke of bugs as being very plentiful, doubtless owing to the frequent rains washing off the applications of Paris green.

The November bulletin said : "When correspondents wrote in early August, the yield of potatoes promised to be one of the largest ever recorded in Ontario. Unfortunately, rot developed at the time of digging in almost every section of the Province, more especially on heavy soils and on low-lying lands, the western and central counties suffering more from this cause than those counties lying further east and north. The extent of the rot, as given by our correspondents, varies from ten to sixty per cent., but as the yield in most cases is a big one, a large quantity of potatoes have been stored away despite the heavy loss, and the question of their actual scarcity for market later on has yet to be decided ; if the rot continues in the pits there will be a positive potato famine, but if it ceases there will be a fair supply yet on hand. Some correspondents fear a continuance of the rot. Aside from the rot, potatoes were described as being large in size and of good quality generally."

Carrots. Scarcely any mention was made of carrots in the August bulletin, but roots generally were not up to the mark at that time. November reports also had but little to say regarding carrots, but what was reported was to the effect that the crop had turned out well comparatively.

Mangel Wurzels. The August bulletin contained the following : "Reports concerning mangels vary very much, for while some of the returns speak of the crop as being in good condition a large number describe it as thin and patchy in places, owing to the

dry weather which prevailed at seeding interfering with germination. In various parts of the Province some of the mangels had to be plowed up."

The following is a summary of the November reports regarding mangels: "Many complaints are made of poor seeding on account of drouth, and a considerable quantity of mangel land was resown to turnips. Nevertheless the crop caught up as the season advanced, and many reports are to the effect that while mangels are thin on the ground they are large and of good quality, and promise a fair yield."

Turnips. This crop gave better promise than any other class of roots when correspondents wrote in the beginning of August.

The November bulletin thus referred to the crop: "In those sections of the country where turnips; are most largely grown the crop has turned out well. In many quarters, however, there are complaints of lice doing much injury to the plants. While most of the other roots were housed as correspondents wrote, a considerable quantity of turnips yet remained in the ground, although no fears were expressed as to saving them in good order."

Sugar Beets. According to the August bulletin, sugar beets were in a rather backward condition. Reports sent in early in November were more encouraging, the beets being described as ranging from fair to good in both yield and quality. They appear to be growing steadily in favor as good for live stock.

FRUIT AND FRUIT TREES.

The following report on spring conditions in the orchard appeared in the May bulletin: "Orchards have come through the winter in excellent order, so far as weather conditions are concerned, no injury from severe frosts or ice storms being reported. The only damage to fruit trees between November and April was caused by a plague of field mice, reference to which is made later in this bulletin. Heavy frosts occurred about the close of April and the beginning of May, but, fortunately, the bulk of fruit was not sufficiently advanced in bud to be much injured. Owing to the backwardness of blossoming on the 1st of May it was then difficult to estimate the extent of bloom, and the promise of the general yield. It was the opinion of several correspondents, however, that stone fruits, such as cherries, plums, and peaches, would be relatively better in yield than apples and pears. Small fruits give promise of an excellent yield should favorable weather continue."

The August bulletin had the following: "Taking the western half of the Province as a whole, apples are not up to the average, either in yield or quality, but most of the reports from counties extending from York to Grenville, speak more favorably of this fruit in both respects. Some correspondents claim that the greatest injury was from frost during the period of blossom. Winter apples will be relatively scarcer than the earlier sorts. Considerable scab has been reported where the trees were not sprayed, but complaints have been less than usual concerning wormy fruit. Blight among apple trees is reported in several districts. While a few correspondents speak well of the prospects for pears, most of the returns do not favor a large, or even an average, yield. Plums, however, have had a most favorable season for bearing, and where sprayed have yielded generously, but where neglected much injury was wrought by the curculio causing young fruit to drop from the trees. A few complaints have also been received of plums rotting. In most quarters where grown, peaches are yielding well, more especially the later varieties. Cherries give from a fair to a light yield, and, like plums, have suffered somewhat from blackknot. Grapes will be a medium crop should favorable weather continue until ripening. Strawberries, raspberries, and other small fruits have been more or less abundant."

In summing up fruit conditions the November bulletin said: "Fruit growers will likely remember 1903 as the plum year. That fruit was so abundant that many growers

found it difficult to handle the crop in time for market. The quality of the plums was also good. There was a fair yield of apples, but in various parts of the Province complaints were made of the scarcity of barrels, and, on this account, buyers were more particular than ever in the selection of this fruit, and thousands of bushels of apples that in former years would have passed for shipment to Great Britain were this season rejected by them. The tent caterpillar and codling moth were not so bad as in recent years. Pears yielded well in most places, but some blight is reported. Peaches were plentiful, but serious complaints are made regarding the ravages of the San Jose Scale among these and other fruit trees. Cherries bore bountifully, but some references are still made by correspondents to the danger threatening cherry and plum trees by black-knot. Grapes were fair in yield, but suffered somewhat from hail storms, and wind storms also helped to thin out apples and other orchard fruits. Small fruits of nearly every variety were abundant. Scarcity of labor was another great drawback to the proper handling of the fruit crop."

Mice in Orchards. In the bulletin issued a year ago reference was made to a visitation of field mice which did great injury to orchards in some of the eastern counties, more especially in that region lying between the St. Lawrence and Ottawa rivers. This year a number of complaints are also made of the depredations of mice in orchards, although no mention is made of them by correspondents residing in the St. Lawrence and Ottawa district east of Leeds.The pest appeared further west this time, as will be seen by the remarks of correspondents quoted below. Thousands of valuable orchard trees and some ornamental trees and shrubs have been injured, and the situation is evidently considered as serious by some who are reporting.

Prof. H. L. Hutt, Horticulturist at the Ontario Agricultural College, has furnished the Department with the following information regarding the advent of this plague of mice, and the best means to adopt in coping with them :

"With reference to the injury of orchard trees by mice, I must say that this has been unusually severe during the past two winters, and it is hard to account for the unusual increase in the number of mice, unless it can be that their enemies, the hawks and owls, are shot whenever the opportunity offers.

"We protected our trees last winter, and used several kinds of felt and building papers. It has been commonly supposed that the ordinary tar paper would injure the trees because of the absorption of heat due to the color. Some trees we wrapped with this, some with ordinary felt paper, others with felt, and others with felt building paper composed of a thin inner layer of tar paper with an outside felt covering. So far we have not seen any injury from the use of tar paper ; and all kinds proved effective in protecting the trees from mice when properly put on. The paper was cut in strips large enough to go around the trees, and to stand about one foot high. Each of the trees was simply tied around with string to hold the paper in place, and earth was banked around the bottom of the paper. Wherever this latter precaution had been omitted, we found that there was danger of mice getting in under the paper, and in a few cases where the earth had not been banked around the paper the trees were injured."

"Trees which have been injured by girdling may be saved if taken in time. If the girdling is but slight and near the ground, all that is necessary is to build up the earth to keep the wood from drying out ; but if the girdle completely surrounds the tree, and the bark is removed for some distance up, the injury should be bridged by grafting. This bridge-grafting is performed by taking young shoots from the trees and inserting the lower ends beneath the fresh bark below the girdle, and the upper ends beneath the fresh bark above it. Three or four of thse should be put in, and the whole should be covered up with a bandage, holding plenty of moist earth against the injured part. This form of grafting has been freequently described in the Canadian Horticulturist and other journals."

MISCELLANEOUS.

Rape. This crop continues to increase in favor, having an area of 51,217 acres as compared with 49,573 acres in 1902. The present area is nearly 50 per cent. larger than that of 1900. Rape is used mainly for finishing off sheep, which are turned in upon the growing crop in the fall Swine and other live stock are also fed upon it, but owing to its tainting milk, rape is not considered good for dairy cows.

Tobacco. Most of the tobacco raised in the Province is grown in the counties of Essex and Kent in the west, and in Prescott and Russell in the east. Correspondents do not report very fully concerning this crop, but western returns in August were to the effect that it was rather backward owing to the late planting and cold, wet weather although otherwise looking well. The reports from eastern Ontario were rather more favorable as to general condition, but it was stated that some replanting had to be done on account of drouth. The interest in tobacco growing appears to be less than during the past two or three years.

Correspondents said very little in November about tobacco. Seeding was rather late, and the cool, wet weather kept growth back; but the fine early autumn weather was most favorable, and the condition of the crop at harvesting was ranked by correspondents at from fair to good.

The area was 2,318 acres, yielding 2,423,031 pounds.

Flax But little flax is raised for commercial purposes outside of certain localities in some of the Lake Huron and West Midland counties, and even there it is grown to a comparatively limited extent. The crop this year may be classed as from fair to good.

The acreage is placed at 6,972 acres, as against 7,101 in 1902.

Hops. This crop is referred to by a few correspondents only, but what is said is in its favor so far as general condition is concerned, although one correspondent in Russell speaks of slight injury to hops from a touch of frost in June.

The acreage was 2,514, as compared with 2,237 in 1902.

Threshing and Marketing. The November bulletin stated: "Threshing is more advanced than usual, being practically completed in most parts of the Province, although in a few sections winter threshing is still in vogue. Progress in marketing is hard to describe, nearly every farmer being a law unto himself regarding the disposal of his grain. Some report that more wheat has been sold than was marketed at the same date for some years past, while others in the same localities states that very little wheat or other cereals have been sent to market, as it is now more profitable to feed all kinds of grain to live stock. It would seem as if the advantages of turning grain into beef or bacon are such as to render farmers more independent of the grain market than formerly in the disposal of their wheat, barley, and other grains; although a decided rise in the price of any of these cereals would soon bring out a surprisingly large supply of that particular grain."

Fall Plowing. The following appeared in the November bulletin: "The reports relating to fall plowing are most divergent. A considerable number of correspondents speak of the work as being well advanced, while an equally number say that fall plowing is not so far ahead as usual, a variety of reasons being given, such as the late harvest, threshing apple picking, and the dry condition of the ground. Favorable weather for plowing was prevailing as correspondents wrote, and it is safe to assume that an average acreage will be turned under this fall."

Farm Improvements. Only a fair amount of underdraining was done in 1903, not because farmers have lost confidence in its benefits, but chiefly because good ditchers, and farm laborers generally, have been so scarce. Rail and other wooden fences are being rapidly replaced by woven wire fences of various designs, but barbed wire is now seldom asked for on an Ontario farm. A considerable number of new houses, barns, and other farm buildings were erected during the year, but a still larger amount of work has been done in the way of putting stone, brick or cement basements under existing barns, thus greatly improving the stabling. Cement floors are also becoming more com-

mon in this connection. Many more improvements would have been made to farm buildings but for the scarcity of masons, carpenters, and other skilled labor, and also on account of the high prices of building materials. Taken altogether, however, it has been a year of great advancement in nearly every line of farm improvement.

LIVE STOCK AND THE DAIRY.

The following appeared in the May bulletin: "Taken altogether, the outlook for live stock may be classed as good. Distemper appeared among horses in various parts of the Province, but hardly in sufficient degree to be considered epidemic. In fact, some correspondents attribute much of the trouble among this and other classes of live stock to the poor quality of hay a great deal of which was badly cured owing to the wet summer. Two or three cases of glanders were also reported among horses, but these were confined to where the outbreak took place. The general health of horses, however, may be regarded as satisfactory, and the high prices now being offered for well-reared animals have restored the horse industry to its old-time place. Cattle are described as being a trifle thin, but healthy, and have suffered little from any form of disease. Sheep are reported to be in fair condition, but the dog is said to prevent many from raising mutton and wool. Lambing was later than usual, and a considerable number of those dropped have died. With the exception of an outbreak of hog cholera in some of the Lake Erie counties, the swine industry is most promising. The litters have done better than those of last year. Fodder generally is sufficient, roughage being plentiful; but bran, shorts, and meals generally are very high in price."

August reports were to the following effect: The early part of the season was most unpromising for pastures, being so dry and cold, but frequent rains later on brought meadows into the very best condition, generally speaking. Live stock are in correspondingly good trim, having suffered from little but the horn fly, which, however, appeared later in the season than usual. The flow of milk has been large, and there will be a large supply of dairy products. Farmers supplying cheese factories appear to be more satisfied with results this year than those in the butter line. There is every prospect of an abundance of all kinds of fodder for fall and winter keep."

The condition of pastures and live stock was thus summed up in the November bulletin: "Summer and fall pastures has been all that could be desired, although a few correspondents speak of the fields as beginning to get bare for lack of rain. Both beef and dairy cattle are reported as being in tip-top condition, and in about the usual numbers; but sheep, while in the very best of form, are becoming fewer every year. Hogs, on the other hand, are steadily increasing in numbers, and are being turned off for the packing houses "all the year round," to quote a favorite phrase of correspondents in this connection. The only serious mention of disease amongst live stock is an outbreak of hog cholera in the township of Harwich, in Kent, and this has been confined to the original locality. The weather was so favorable at the beginning of November that most of the live stock were still getting the benefit of pasture. Fodder, however, is reported as being abundant in most quarters, and the general outlook for the wintering of live stock is of the best. The silo continues to grow in favor, although this season a portion of the corn was not in the best condition for making ensilage when cut."

Poultry. Judging by the remarks of correspondents, poultry do not receive the same thought and care that is bestowed upon the other animals on the farm. Nevertheless, there appears to be a growing interest in the selection, feeding, housing, and general care of fowl. Although the summer was not favorable for chickens, it being too wet and cool for the most part, good prices for both eggs and poultry have greatly encouraged raisers. A few cases of roup and cholera have been reported among hens, and a fatal illness among turkeys in one or two localities, but the general health of barnyard birds has been good. Turkeys did more poorly this year than any other class of fowl, several

correspondents attributing their comparative failure to the cold, wet weather prevailing at the period of hatching.

Values per Head. The statistics of live stock will e found on pages 35-41. The following table gives the average value per head of stock on hand for the past ten years :

Classes of live stock.	1903	1902	1901	1900	1899	1898	1897	1896	1895	1884
	$	$	$	$		$	$			
Horses :										
Working horses	103	93	85	79	72	65	61	63	66	74
Breeding mares	106	95	87	81	74	68	64	64	68	76
Colts	67	62	57	53	49	44	41	41	44	48
Stallions	388	373	346	368	332	303	283	263	265	328
Cattle :										
Working oxen	45	42	41	42	46	43	42	43	45	46
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Milch cows	34 15	32 96	31 74	31 01	30 31	28 28	26 13	27 60	29 74	31 02
Store cattle	31 71	30 02	29 25	29 38	29 27	26 49	23 89	24 01	25 36	26 75
Other cattle	15 82	15 01	14 14	13 67	13 09	11 91	10 62	11 19	12 14	12 91
Sheep :										
Over one year	5 36	5 40	5 31	5 17	5 01	4 76	4 37	4 41	4 62	5 14
Under one year	3 35	3 37	3 37	3 31	3 15	2 91	2 62	2 65	2 85	3 26
Swine :										
Over one year	16 28	16 00	14 34	12 09	12 23	12 63	11 40	11 13	11 87	13 08
Under one year	5 07	5 15	4 81	4 24	3 92	3 91	3 67	3 70	3 98	4 30
Poultry :	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
Turkeys	69	66	65	65	65	63	64	65	65	67
Geese	61	61	60	59	57	55	56	56	56	57
Ducks	33	33	31	30	29	.....	.....	.....	.....	.....
Other fowls	27	26	24	23	22	22	21	22	22	23

Bees and Honey. The August bulletin said : "The season has been a favorable one for the apiary. Bees swarmed freely, and there has been an abundance of nectar in both field and forest, more especially in the case of white clover, which was more or less in bloom all summer. The yields reported range from 25 to 100 pounds per colony, but the average for the Province will be about 55 pounds, spring count. Little or no disease has been reported among bees, and at last accounts they were said to be in a thrifty condition."

November bulletins were summarized as follows : "A good yield of honey is reported from the western and central parts of the Province, but in the St. Lawrence and Ottawa counties apiarists have not done so well, owing to unfavorable weather. As a rule, bees will go into winter quarters with a fair amount of supplies, and in exceptional cases only will feeding back be necessary. Very few complaints were made of foul brood or other disease among bees."

The Dairy. The following is from the November bulletin : "The season has been a most favorable one for the dairy. Pastures were excellent, the flow of milk was large and uninterrupted, the weather was comparatively cool, there was a large quantity of butter and cheese made, and both articles commanded good prices, with the honors in favor of cheese. In fact the high prices paid for cheese during the latter part of the season caused a considerable quantity of milk to be diverted from butter to cheese-making, and several correspondents state that it was likely that the cheese-making season would run further into November than has been the custom of late. 1902 was a good cheese year, but 1903 has been even better ; in fact the past season has been the most profitable cheese year that Ontario has ever known. Grade Durhams are the breed still to be most generally found as dairy cows, more especially in the western half of the Province, but in the cheese counties along the St. Lawrence and Ottawa rivers Holsteins and Ayrshires, with their grades, are equally popular, with the Shorthorns, Jerseys and their grades come next in popularity."

Cheese Factories. The count of the cheese factories for 1903 shows 1,126, or one less than in 1902. The quantity of cheese made was 165,306,573 pounds, or eighteen and one-half millions in excess of 1902. The average price was 10.41 cents, as compared with 10.08 in 1902, and 9.09 in 1901. The season's output was worth $17,203,233, of which $15,393,250 was paid to 57,102 patrons and for cost of collecting milk, or 88.7 per cent. per 100 pounds of milk, as against 85.5 in 1902 and 75.4 in 1901. The leading counties according to output are as follows: Hastings, Oxford, Leeds, Dundas, Frontenac.

Creameries. The following comparative table gives the statistics of the creameries operated in Ontario for the ten years 1894-1903, showing the quantity and value of butter made, the average number of patrons, the average price of butter per pound, and the amount paid to patrons for milk or cream supplied:

Year.	No. of creameries in operation.	Butter made.		Average No. of patrons.	Average price of butter per pound.	Amount paid to patrons for milk or cream delivered.
		Quantity.	Value.			
		lb.	$		cts.	$
1903	265	10,812,126	2,096,593	19,602	19.39	*1,767,595
1902	282	11,082,078	2,181,400	21,672	19.68	1,887,026
1901	286	9,047,260	1,798,264	19,896	19.88	1,548,576
1900	308	9,041,468	1,819,290	21,809	20.12	1,589,291
1899	323	9,113,964	1,746,362	22,090	19.16	1,448,411
1898	282	9,008,992	1,632,234	22,741	18.12	1,294,220
1897	214	7,708,265	1,403,609	18,909	18.21	1,139,463
1896	170	6,033,241	1,101,232	12,245	18.25	.....
1895	135	4,533,708	868,382	9,664	19.07	.....
1894	115	3,162,550	662,297	8,298	20.94	.....

The number of creameries include the skimming stations. The reduction is wholly in the winter creameries in connection with the cheese factories. The 165 winter creameries made 2,129,918 pounds of butter, while the 100 other creameries averaged 86,822 pounds each.

LABOR AND WAGES.

The question of labor and wages on the farm has been keenly discussed by correspondents, as will be seen from the following summaries of their remarks as taken from the various bulletins during the year.

The May reports were to the following effect: "The demand for help has been a strong one during the last two or three years, but this season it has become an almost bitter cry, from the fact that not only is the number of hands smaller than ever, but the skill and experience of the workers are lacking, as most of the alert and capable young men have gone to the north or Northwest, while their successors are more or less inexperienced in Canadian farm work. In many parts of the Province the situation is regarged as being quite serious, but it is being relieved somewhat by the newer class of implements coming into vogue, which admit of more horses and less men being used, and also by the fact that less hoed-crops and more pasture land will be the rule until more farm help can be procured. With the good prices prevailing for all classes of live stock pasture can be put to more profitable use than ever before. Wages for farm laborers have not been so high for many years. Farmers are eager to procure and retain good hands, and experienced hired men on the farm to-day may fairly be regarded as being in a relatively better position than formerly."

The following are labor conditions as reported in August: "Full crops and the migration of farmer's sons to New Ontario and to Manitoba and the Northwest, created a demand for farm laborers in Ontario that could not be met during the rush of summer operations. Several correspondents refer to the influx of British immigrants as having relieved the situation to some extent; for while a number of these, having

* Estimated, and includes cost of collection as in 1900-2.

had no previous experience in agricultural work, were a sore disappointment, many of them have given good satisfaction. Wages during harvesting ranged from $1.25 to $2 a day, according to locality, the skill of the worker, and the urgency of the demand for help, the average rate being about $1.50, with board. Monthly wages ran all the way from $20 to $40, and in a few cases as high as $45, the prevailing quotations being from $25 to $30, with board. While many farmers were undoubtedly hard pushed for a while during harvest, the plan of interchanging labor proved to be of great assistance in some cases, and improved machinery is also mentioned as having been of much help in meeting the rush of work. On account of the scarcity and comparatively high price of labor, a number of farmers are considerably behind in their work, while others have had to let intended building improvements lie over from the same cause."

The November bulletin said: "Correspondents are agreed as to the great scarcity of farm labor, but they are much divided as to how to meet the difficulty. The exodus to the north and Northwest still continues, which means the loss to the Province of many of its most stalwart and experienced young men, and their places here are being taken by old-country youths who suffer in comparison, although some of them give satisfaction. Wages show no tendency to lower, and some correspondents insist that it is impossible to pay current rates and make a profit. Improved machinery, however, is coming to the help of the farmer and more land is also being devoted to pasture. The scarcity of rural labor is so greatly felt in some quarters that several correspondents seriously advocate the bringing into the country of Chinese and Japs to supply the deficienc Domestic servants on the farm are exceedingly had to procure. A number of correspondents assert that it is easier to get a wife than it is to find a female servant for a farm house."

The following table gives the average rate of wages paid farm laborers by the year and by the month, with and without board, for ten years, together with the average for twenty-two years; also the monthly wages paid domestic servants on the farm:

Farm Laborers.	1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1882-1903
Per year in yearly engagements:	$	$	$	$	$	$	$	$	$		
With board	183	165	165	155	149	148	144	144	150	156	159
Without board	274	268	263	248	243	246	236	243	246	247	252
Per month for working season:	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	c.	$ c.	$ c.	$ c.	$ c.
With board	19 44	18 52	17 78	16 57	15 38	15 31	14 29	14 57	15 38	16 55	16 98
Without board	28 04	27 51	27 05	25 73	24 93	25 44	24 47	24 11	25 45	25 61	26 33
Domestic servants per month	7 84	7 15	6 91	6 65	6 19	6 09	5 97	6 11	6 07	6 23	6 37

There is an increase in the rate of wages paid to every class of workers on the farm. The average yearly rate, with board, has risen from $165 to $183, while the average yearly rate, without board, has gone up from $268 to $274. Monthly wages, with board, average $19.44, an increase of 92 cents over the figures for the preceding year, while monthly rates, without board, average $28.04, or 53 cents more than in 1902. Domestic servants average $7.84 per month, an advance of 69 cents over the average for the previous year.

TEMPERATURES OF 1903.

TABLE I.—Showing for each month the highest, lowest, mean highest, mean lowest and mean temperature at the principal stations in Ontario in 1903; also the annual mean for each station.

Months.		Saugeen.	Birnam.	London.	Woodstock.	Stoney Creek.	Toronto.	Lindsay.	Gravenhurst	Ottawa.	Rockliffe.
		°	°	°	°	°	°	°	°	°	°
January	Highest	43.0	47.1	47.0	45.0	52.0	43.9	41.5	41.0	41.0	40.0
	Lowest	— 6.8	3.5	12.0	8.0	— 5.0	— 4.9	—17.6	—23.0	—22.0	—45.0
	Mean highest	29.9	27.1	29.7	27.8	32.2	29.8	25.4	25.4	20.4	18.1
	Mean lowest	15.1	15.6	14.0	14.8	15.9	16.3	9.4	6.8	3.2	— 8.3
	Monthly mean	22.5	21.3	21.9	21.6	24.3	23.2	17.4	16.1	11.8	4.9
February	Highest	42.0	44.9	44.0	43.5	50.0	45.5	43.0	41.0	45.0	41.0
	Lowest	— 6.1	— 7.9	— 6.5	— 6.0	— 3.0	— 5.7	—12.0	—22.5	—20.0	—37.0
	Mean highest	30.8	29.3	30.9	30.0	31.3	32.1	29.4	27.3	26.0	23.5
	Mean lowest	16.3	17.2	16.5	16.3	20.7	19.4	13.6	9.4	10.4	— 3.1
	Monthly mean	23.5	23.3	23.7	23.9	27.9	25.9	21.9	19.0	18.2	10.2
March	Highest	72.0	71.6	76.0	72.0	76.0	68.4	68.6	70.0	68.0	59.0
	Lowest	7.6	15.5	12.0	10.5	20.0	15.9	7.7	2.0	2.0	—16.0
	Mean highest	45.4	46.5	49.2	46.8	47.3	46.5	44.9	43.7	42.2	42.6
	Mean lowest	30.1	32.3	31.6	30.6	33.6	32.7	30.1	27.8	26.7	20.1
	Monthly mean	37.8	39.4	40.4	38.8	40.0	38.9	37.5	35.8	34.4	31.4
April	Highest	77.5	78.0	80.0	75.5	82.0	76.2	76.6	77.0	81.0	80.0
	Lowest	16.6	10.0	8.5	12.0	19.0	14.3	10.4	13.0	15.0	8.0
	Mean highest	51.8	51.4	55.0	53.7	54.9	52.7	54.8	54.3	55.0	54.7
	Mean lowest	33.2	35.8	33.3	32.6	36.2	35.0	32.7	31.0	33.3	25.9
	Monthly mean	42.6	43.6	44.1	43.1	45.5	43.1	43.7	42.7	44.0	40.3
May	Highest	80.0	83.8	86.0	82.5	87.0	83.2	87.6	85.0	90.0	87.0
	Lowest	26.0	28.0	25.5	25.5	28.0	28.6	25.1	22.0	24.0	18.0
	Mean highest	66.7	68.7	71.1	68.7	67.1	66.6	70.3	68.4	72.9	70.6
	Mean lowest	44.8	46.9	44.7	44.2	46.2	45.2	43.2	41.3	24.0	26.9
	Monthly mean	55.7	57.8	61.2	56.6	56.7	55.4	56.5	55.3	54.2	53.7
June	Highest	82.5	81.5	85.0	83.0	90.0	87.6	85.7	85.0	86.0	87.0
	Lowest	39.3	42.2	40.0	40.0	38.0	44.3	42.8	38.0	43.0	29.0
	Mean highest	66.1	68.3	71.7	69.7	72.1	71.1	72.8	72.5	73.1	73.1
	Mean lowest	48.4	51.2	49.8	49.4	53.2	52.5	42.8	46.8	43.0	46.0
	Monthly mean	57.3	59.7	63.4	60.3	62.6	61.1	60.6	60.6	62.8	59.6
July	Highest	86.0	88.0	89.5	87.0	97.0	91.5	91.0	92.0	89.0	92.0
	Lowest	46.2	47.8	45.0	44.0	45.0	46.9	44.0	42.0	46.0	36.0
	Mean highest	74.6	76.6	78.8	76.8	81.3	74.1	78.0	76.7	76.7	76.5
	Mean lowest	59.2	59.9	58.1	56.2	60.6	59.2	56.5	55.6	60.3	52.5
	Monthly mean	66.8	68.2	68.5	67.5	69.6	68.2	66.0	66.0	68.5	64.0
August	Highest	81.5	81.0	83.0	81.2	88.0	83.0	80.8	79.0	80.0	81.0
	Lowest	44.2	44.5	41.5	43.0	44.0	46.9	41.7	40.0	40.0	33.0
	Mean highest	70.9	71.4	73.1	71.3	75.2	72.1	72.2	71.6	71.1	70.1
	Mean lowest	54.3	55.6	53.0	52.1	55.9	55.4	51.7	50.8	53.7	46.8
	Monthly mean	62.6	63.5	63.0	62.6	65.7	63.3	61.0	61.4	62.4	58.4
September	Highest	84.0	84.0	86.0	83.5	90.0	83.8	86.0	80.0	84.0	81.0
	Lowest	37.6	36.7	29.0	29.0	32.0	33.8	34.1	35.0	40.0	28.0
	Mean highest	68.3	68.8	71.1	69.8	74.4	71.3	70.7	69.3	67.5	67.5
	Mean lowest	50.0	53.2	49.4	47.6	50.9	50.6	48.1	46.6	48.3	42.1
	Monthly mean	59.2	61.0	60.3	59.3	61.8	60.4	58.0	57.7	57.9	54.8
October	Highest	76.0	70.3	75.0	73.0	80.0	73.9	74.1	71.0	69.0	74.0
	Lowest	29.0	31.9	30.0	24.0	25.0	27.9	17.0	17.0	23.0	10.0
	Mean highest	57.6	57.8	59.5	58.1	61.9	59.5	57.7	57.1	57.0	56.1
	Mean lowest	41.6	43.4	40.5	39.0	42.3	42.1	38.3	37.7	40.8	30.7
	Monthly mean	51.2	50.6	50.0	49.2	52.6	50.6	48.0	47.4	48.9	43.4
November	Highest	60.0	66.2	68.0	66.0	73.0	70.2	64.6	61.0	59.0	68.0
	Lowest	13.2	— 5.1	1.5	— 1.0	9.0	6.1	2.6	5.0	4.0	—12.0
	Mean highest	41.9	39.4	41.9	40.3	46.0	42.2	38.2	38.6	37.1	37.2
	Mean lowest	27.6	25.9	24.3	23.6	29.2	27.8	23.0	24.4	25.4	16.3
	Monthly mean	34.8	32.6	33.1	32.5	36.8	34.4	30.3	30.9	31.2	26.7
December	Highest	44.8	36.6	39.0	39.0	45.0	39.2	36.5	35.0	36.0	30.0
	Lowest	— 2.0	— 9.0	0.0	— 5.0	— 2.0	— 9.7	—22.0	—23.5	—22.0	—40.0
	Mean highest	30.6	25.0	27.3	27.1	31.0	29.6	24.8	24.6	19.9	16.3
	Mean lowest	14.5	14.8	15.0	14.5	16.8	16.2	7.9	3.3	3.1	—10.9
	Monthly mean	22.6	19.9	21.2	21.1	24.5	22.5	16.5	14.6	11.5	2.7
Annual mean		44.7	45.1	45.9	44.7	47.3	45.6	43.1	42.3	42.6	37.5

AVERAGES OF TEMPERATURES FOR TWENTY-TWO YEARS.

TABLE II.—Showing for each month the monthly average for the highest, lowest, mean highest' mean lowest and mean temperature at the principal stations in Ontario, derived from the twenty-two years 1882-1903 ; also the annual mean at each station for the same period.

Months.		Saugeen.	Birnam.	London.	Woodstock.	Stoney Creek.	Toronto.	Lindsay.	Gravenhurst.	Ottawa.	Rockliffe.
		°	°	°	°	°	°	°	°	°	°
January	Highest	44.3	46.1	46.3	45.9	51.2	44.8	41.4	41.5	40.2	37.6
	Lowest	— 6.8	— 9.5	— 9 4	—11.5	— 4.3	— 7.5	—20.3	—26.3	—22.0	—34.0
	Mean highest	28.1	27.0	28.7	27.8	32.8	28.8	24.2	24.0	19.9	18.4
	Mean lowest	13.3	14.5	13.7	11.4	18.6	14.2	6.6	4.2	1.1	— 6.0
	Monthly mean	20.8	20.9	22.0	20.8	23.4	22.0	15.7	14.7	11.1	6.3
February	Highest	45.0	47.3	46.4	45.7	48.4	44.2	42.1	42.5	40.4	41.9
	Lowest	—10.3	—12.7	—11.3	—11.3	— 5.9	— 7.8	—17.7	—25.2	—21.3	—34.6
	Mean highest	27.9	27.4	28.7	28.3	31.8	28.9	25.8	25.5	22.3	22.3
	Mean lowest	11.7	13.3	12.3	11.3	16.4	13.7	6.4	4.4	3.6	0.5
	Monthly mean	19.5	20.2	21.2	20.8	23.5	21.8	16.3	15.5	13.4	9.0
March	Highest	52.8	57.5	57.5	55.7	58.8	52.9	50.0	49.8	47.0	50.0
	Lowest	— 3.9	— 3.7	— 2.1	— 3.1	5.4	3.6	— 7.1	—13.2	— 8.7	—23.9
	Mean highest	34.8	36.1	37.3	36.2	40.2	36.0	33.8	33.8	32.4	33.0
	Mean lowest	17.8	20.9	20.1	18.5	25.3	21.6	15.8	13.0	14.6	6.9
	Monthly mean	26.2	27.9	29.4	28.1	31.3	28.8	24.7	23.8	23.7	20.0
April	Highest	73.8	77.8	76.9	75.6	78.5	71.6	75.1	71.8	74.5	75.4
	Lowest	15.0	17.5	18.2	17.1	23.4	21.0	13.6	11.3	14.5	6.2
	Mean highest	49.8	53.1	53.4	53.2	54.2	51.0	52.4	50.5	51.4	51.8
	Mean lowest	31.5	34.2	32.7	32.1	36.7	34.0	30.8	29.2	31.3	26.3
	Monthly mean	40.1	43.4	44.6	43.1	44.2	42.4	41.2	39.9	41.7	38.6
May	Highest	79.7	82.5	82.2	80.9	84.3	78.5	82.4	81.4	83.2	85.3
	Lowest	28.5	29.0	30.0	29.1	34.0	32.1	28.3	27.7	30.7	24.2
	Mean highest	61.2	65.8	66.6	64.8	65.8	62.8	65.8	64.1	66.4	65.9
	Mean lowest	41.4	44.4	44.2	42.4	45.6	44.0	42.1	41.7	43.1	38.4
	Monthly mean	50.8	55.0	56.5	54.4	54.9	53.2	53.7	52.8	55.5	51.9
June	Highest	85.3	88.4	87.9	87.3	91.9	86.8	88.8	87.1	88.3	89.4
	Lowest	37.8	37.7	38.6	38.6	43.4	42.7	39.0	37.4	41.9	33.5
	Mean highest	70.8	76.0	76.2	75.6	77.9	73.9	76.1	74.9	76.0	75.6
	Mean lowest	50.7	53.5	53.4	51.8	56.4	53.8	51.1	51.1	53.7	47.7
	Monthly mean	60.5	64.6	66.0	64.6	66.2	63.6	63.6	63.1	65.4	61.5
July	Highest	87.5	92.4	91.7	90.5	95.5	90.2	91.5	89.6	91.9	91.0
	Lowest	43.3	42.5	44.0	44.0	49.5	48.0	43.5	43.4	47.0	39.9
	Mean highest	77.6	80.3	80.2	79.8	83.2	76.7	79.9	78.3	79.0	78.2
	Mean lowest	55.8	57.0	57.2	55.5	61.3	58.3	55.1	55.5	57.9	52.7
	Monthly mean	65.1	68.6	69.9	68.4	71.3	68.2	67.2	66.9	68.6	64.8
August	Highest	86.2	90.6	89.9	89.1	93.2	87.8	89.6	87.9	88.5	88.4
	Lowest	42.0	41.5	40.4	41.5	47.1	46.3	40.1	40.2	43.0	37.1
	Mean highest	73.7	77.2	77.6	77.4	80.9	76.1	77.4	80.5	76.1	75.1
	Mean lowest	54.9	55.4	54.3	51.7	59.0	52.4	53.1	53.3	55.0	50.1
	Monthly mean	65.9	66.0	67.0	65.7	69.5	66.2	64.6	64.2	65.7	61.3
September	Highest	84.6	87.4	86.2	86.1	90.6	84.4	86.3	83.8	85.0	84.5
	Lowest	33.5	33.4	31.8	31.3	36.5	36.6	31.0	31.3	32.8	28.8
	Mean highest	68.2	70.7	71.1	70.2	74.1	68.9	69.5	68.7	68.5	67.7
	Mean lowest	49.4	50.5	49.4	47.0	52.9	50.4	46.5	47.0	47.7	43.2
	Monthly mean	57.9	60.6	60.7	59.2	62.2	59.5	57.3	57.4	58.0	53.8
October	Highest	74.1	76.0	74.9	74.2	76.8	72.2	73.4	72.2	70.5	72.6
	Lowest	24.8	24.7	23.9	23.0	26.8	26.3	20.9	21.8	23.3	17.6
	Mean highest	56.2	57.2	57.7	56.5	61.5	56.0	55.2	55.4	53.8	53.2
	Mean lowest	39.5	40.5	38.3	36.9	42.2	40.0	36.1	37.1	36.5	33.0
	Monthly mean	47.0	48.8	48.4	47.2	50.3	48.0	44.9	45.6	45.3	42.1
November	Highest	61.4	63.4	62.6	62.0	66.4	60.3	60.0	59.4	58.0	57.2
	Lowest	13.8	12.6	12.0	10.6	16.9	13.8	4.5	7.3	5.4	— 0.1
	Mean highest	43.3	42.7	44.0	42.8	47.3	43.4	40.5	40.6	38.5	37.0
	Mean lowest	30.1	30.7	29.4	27.8	32.9	30.6	25.9	26.1	23.2	21.6
	Monthly mean	36.1	36.7	37.0	35.9	39.6	37.1	33.0	33.2	31.9	28.9
December	Highest	50.1	49.1	55.6	49.5	54.4	47.9	44.8	46.7	42.5	41.2
	Lowest	— 1.0	— 2.8	— 3.4	— 4.4	0.6	— 2.6	—14.1	—14.4	—16.8	—26.4
	Mean highest	33.3	31.8	33.1	32.2	36.4	33.6	29.0	29.3	24.9	24.1
	Mean lowest	20.4	20.7	19.7	17.8	22.9	20.6	13.4	13.0	9.0	4.2
	Monthly mean	26.7	26.2	26.9	25.8	29.9	27.4	21.6	21.7	17.4	12.0
Annual mean		43.1	44.9	45.8	44.5	47.2	44.8	42.0	41.6	41.5	37.7

RAIN AND SNOW.

TABLE III. Summary of the total fall of rain and snow, and the number of days on which rain and snow fell in Ontario during the year 1903 at stations reporting the whole year and the average for the Province.

Station.	Rain.		Snow.	
	Inches.	Days.	Inches.	Days.
ALGOMA:				
Port Arthur	18.81	67	30.0	28
White River	20.59	88	88.0	67
Providence Bay	25.46	93	135.5	52
Bruce Mines	31.54	87	85.9	43
Cockburn Island	28.03	83	70.8	43
Savanna	16.30	50	65.5	26
BRANT:				
Paris	27.09	85	42.8	16
Brantford	23.92	43	36.0	13
BRUCE:				
Lucknow	31.17	97	95.9	66
N. Bruce	20.45	83	83.5	66
Point Clark	23.18	53	117.0	45
Saugeen	21.61	96	143.1	78
CARLETON:				
Ottawa	24.67	96	69.2	49
DUFFERIN:				
Orangeville	25.48	61	88.6	39
DURHAM:				
Port Hope	26.29	88	80.9	36
ESSEX:				
Cottam	32.74	86	42.7	19
Windsor	33.48	94	40.9	25
ELGIN:				
Port Stanley	34.67	123	64.8	56
Cowal	23.68	62	40.2	36
Port Burwell	36.34	87	42.3	28
FRONTENAC:				
Arden	24.29	109	77.0	37
Kingston	28.37	107	60.6	60
GREY:				
Owen Sound	28.52	94	173.3	66
Meaford	23.80	93	138.5	52
Rocklyn	23.40	79	256.8	71
HALIBURTON:				
Haliburton	22.71	112	76.1	58
HALTON:				
Georgetown	28.94	99	78.1	72
HASTINGS:				
Belleville	24.56	73	73.0	23
Deseronto	24.92	68	68.5	40
HURON:				
Goderich	25.48	65	112.5	36
Sunshine	21.55	75	102.3	59
KENT:				
Dealtown	35.91	80	22.1	18
Chatham	28.52	63	9.0	3
LAMBTON:				
Wyoming	25.86	69	64.0	22
Sarnia	15.70	33	72.0	23
Birnam	31.27	87	85.8	37
LANARK:				
Montague	75.02	58	31.8	16
LEEDS:				
Lansdowne	20.19	45	33.5	18
LENNOX:				
Parma	25.24	63	48.0	16
MIDDLESEX:				
London	24.53	96	99.8	63
Hubrey	30.89	79	18.0	20
MUSKOKA:				
Beatrice	26.30	83	87.0	53
Emsdale	28.01	98	101.8	51
Gravenhurst	23.02	78	122.4	56
Bala	26.68	97	145.5	46
NIPISSING:				
Haileybury	19.86	107	91.6	68
Calvin	25.56	81	109.4	52
NORFOLK:				
Port Dover	33.30	112	54.9	45
NORTHUMBERLAND:				
Wooler	20.64	71	56.1	31
OXFORD:				
Woodstock	22.68	86	52.8	29
PARRY SOUND:				
Parry Sound	28.58	101	96.4	58
Uplands	19.58	79	133.4	50
PEEL:				
Alton	20.80	73	60.5	42
PETERBOROUGH:				
Jermyn	18.64	53	46.0	18
Peterborough	21.03	65	90.2	37
Lakefield	20.45	63	68.0	30
RAINY RIVER:				
Rat Portage	17.08	55	63.7	30
RENFREW:				
Clontarf	17.68	76	105.1	54
Rockliffe	20.79	85	81.1	45
SIMCOE:				
Midland	18.53	74	122.4	39
Coldwater	19.33	57	120.1	36
VICTORIA:				
Lindsay	20.86	103	96.6	59
WELLAND:				
Welland	28.92	96	80.6	25
WELLINGTON:				
Guelph	20.23	66	37.2	31
Erasmus	26.27	102	85.8	72
WENTWORTH:				
Stoney Creek	32.24	75	51.0	24
YORK:				
Aurora	22.39	83	57.7	47
Scarborough	21.81	79	41.0	30
Deer Park	26.08	76	38.1	23
Toronto	25.63	100	50.0	52
Agincourt	23.30	65	55.2	28
Average for the Province, 1903	26.44	78	69.8	40
1902	28.29	97	54.8	32
1901	24.12	79	76.3	43
1900	25.28	81	64.6	34
1899	25.13	81	60.5	34
1898	24.90	81	74.2	44
1897	28.30	88	73.0	49
1896	22.36	82	73.4	43
1895	21.61	79	81.1	50
1894	23.30	91	55.1	41
1882-1903	24.38	89	75.0	46

RAIN AND SNOW.

TABLE IV.—Monthly Summary of inches of rain and snow precipitation in the several districts of Ontario in 1903; also the average derived from the twenty-three years 1882-1903.

		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for year.
West and South-west:		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in
Rain	1903	0.65	1.63	2.02	3.28	3.21	3.66	5.48	3.74	2.28	2.50	1.54	1.18	30.17
	1882-03	1.12	1.32	1.37	1.84	3.23	3.09	2.93	2.50	2.63	2.71	2.37	1.55	26.66
Snow	1903	13.8	11.9	0.5	2.3	.....	.....	.....	.....	.....	0.6	3.3	15.7	48.1
	1882-03	15.1	12.8	8.8	2.5	0.1	.....	.....	.....	.....	0.2	6.0	12.6	58.1
North-west and North:														
Rain	1903	0.74	0.78	1.49	1.36	2.28	3.00	3.51	3.38	4.17	3.40	0.65	0.15	24.94
	1882-03	0.80	0.56	0.97	1.45	2.63	2.78	2.90	2.81	3.08	2.99	1.92	1.04	23.93
Snow	1903	27.8	19.6	4.1	2.1	.....	.....	.....	.....	.....	1.0	17.8	42.4	114.8
	1882-03	26.8	20.5	13.6	3.4	0.3	.....	.....	.....	.....	1.5	13.1	22.3	101.5
Centre:														
Rain	1903	0.76	1.60	2.29	2.85	1.84	3.86	3.84	4.40	1.01	2.22	1.03	0.97	26.67
	1882-03	1.08	1.08	1.30	1.73	2.74	2.79	2.71	2.34	2.44	2.37	2.10	1.38	24.06
Snow	1903	19.2	13.0	0.8	2.8	.....	.....	.....	.....	.....	1.0	3.5	17.2	57.5
	1882-03	17.9	14.8	9.9	2.9	0.1	.....	.....	.....	.....	0.4	5.9	11.8	63.7
East and North-east:														
Rain	1903	0.95	1.21	1.86	1.80	0.94	4.79	3.49	3.54	1.40	2.65	0.70	0.56	23.89
	1882-03	0.89	0.70	1.14	1.46	2.65	2.81	2.99	2.55	2.44	2.25	1.81	1.19	22.88
Snow	1903	18.4	9.9	1.5	2.6	.....	.....	.....	.....	.....	0.9	4.2	21.0	58.5
	1882-03	20.9	17.6	11.8	3.3	0.1	.....	.....	.....	.....	0.6	7.9	14.6	76.9
The Province:														
Rain	1903	0.78	1.31	1.92	2.32	1.82	3.83	4.09	3.77	2.21	2.70	0.98	0.71	26.44
	1882-03	0.97	0.92	1.19	1.62	2.81	2.87	2.88	2.55	2.65	2.58	2.05	1.29	24.38
Snow	1903	19.8	13.6	1.7	2.5	.....	.....	.....	.....	.....	0.9	7.2	24.1	69.8
	1882-03	20.2	16.4	11.0	3.0	2.0	.....	.....	.....	.....	0.7	8.2	15.3	75.0

SUNSHINE.

TABLE V.—Monthly summary of bright sunshine at the principal stations in Ontario in 1903 showing the number of hours the sun was above the horizon, the hours of registered sunshine, the total for the year, and the average derived from the twenty-two years 1882–1903.

		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
		hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Sun above horizon		285.7	291.4	369.9	406.4	461.1	465.7	470.9	234.5	376.3	340.2	286.9	274.3	4463.3
Woodstock	1903	39.7	92.7	100.6	179.6	291.8	213.5	280.6	177.2	187.1	155.5	97.0	33.7	1849.0
	1882-03	61.1	87.0	125.2	179.2	208.0	243.6	274.9	234.3	182.9	134.7	69.3	53.8	1854.5
Toronto	1903	71.6	107.7	109.8	188.2	286.9	206.2	287.1	195.6	223.6	168.1	136.1	63.5	2044.4
	1882-03	78.4	105.3	153.3	197.2	221.7	261.2	283.0	249.8	210.8	148.0	80.4	63.9	2053.0
Barrie	1903	42.2	70.3	106.6	187.4	279.7	195.1	254.1	188.0	210.0	154.7	103.9	79.5	1871.5
	1882-03	54.6	79.6	139.3	181.6	206.3	235.3	263.6	223.4	177.0	117.5	56.0	44.5	1778.7
Lindsay	1903	54.1	97.0	86.8	186.1	270.8	182.3	226.3	163.4	182.9	147.1	110.5	46.8	1754.1
	1882-03	73.8	103.3	156.0	200.9	216.4	250.2	263.8	242.9	195.4	136.3	70.2	56.5	1965.7
Kingston	1903	64.4	86.8	95.2	182.3	291.3	182.9	257.7	178.7	215.1	136.4	122.6	74.1	1887.5
	1882-03	75.9	106.0	154.9	192.9	220.5	247.7	267.7	240.0	193.2	138.0	77.0	69.3	1983.1
Average of five stations	1903	54.4	90.9	99.8	184.7	284.1	196.0	261.2	180.6	203.7	152.4	114.0	59.5	1881.3
	1902	84.1	127.7	133.8	144.1	207.8	199.3	241.5	245.2	149.3	119.1	76.6	71.0	1799.5
	1882-03	68.8	96.2	145.7	190.4	214.6	247.6	270.6	238.2	191.8	134.9	70.6	57.6	1927.0

TORONTO OBSERVATORY REGISTER.

TABLE VI.—Comparative Meteorological Register for the seven years 1897-1903, at Toronto Observatory in Lat. 43° 39'.4 N., and Lon. 5h. 17m. 34.65s. W. Height above the sea, 350 feet.

	1903	1902	1901	1900	1899	1898	1897
Average temperature	45.58	45.57	45.55	46.89	45.83	47.15	45.93
Difference from average (63 years)	+ 1.18	+ 1.17	+ 1.15	2.49	1.43	- 2.75	- 1.53
Thermic Anomaly (Lat. 43° 40')	— 5.43	— 5.44	— 5.46	- 4.12	— 5.18	— 3.86	— 5.08
Highest temperature	91.5	91.0	97.1	98.0	92.1	97.1	93.3
Lowest temperature	— 9.7	— 3.3	—10.9	— 9.6	—12.0	—15.0	— 7.2
Annual range	101.2	94.3	108.0	107.6	104.1	112.1	100.5
Average daily range	16.68	16.81	16.90	16.70	17.51	17.48	16.21
Greatest daily range	34.5	33.2	43.0	37.6	35.0	34.4	36.0
Average height of barometer at 32° Fah.	29.6203	29.5940	29.5988	29.6213	29.6368	29.6216	29.6319
Difference from average (62 years)	.0011	— .0252	— .0204	+ .0021	+ .0176	.0024	+ .0127
Highest barometer	30.309	30.394	30.328	30.224	30.403	30.218	30.353
Lowest barometer	28.742	28.712	28.868	28.802	28.657	28.732	28.779
Annual ranges	1.567	1.682	1.460	1.422	1.746	1.486	1.574
Average humidity of the air	76	77	77	76	76	76	76
Difference from average	— 1	0	0	— 1	— 1	— 1	— 1
Average elasticity of aqueous vapour	0.275	0.278	0.291	0.295	0.279	0.289	0.274
Average temperature of dew point	42.7	43.0	44.3	44.6	43.1	44.1	42.7
Average of cloudiness	0.61	0.62	0.61	0.57	0.56	0.58	0.61
Difference from average (19 years)	.00	— .91	.00	— .04	— .05	— .03	.00
Resultant direction of wind	West	N 60 W	N 55 W	S 88 W	S 77 W	N 65 W	N 89 W
Resultant velocity of wind	2.45	2.53	2.99	3.09	2.66	1.78	2.42
Average velocity (miles per hour.)	10.83	10.98	10.26	10.97	10.14	10.12	12.33
Highest velocity in month and year	40.0	44.0	45.0	44.0	50.0	52.0	51.0
Total amount of rain in inches	25.631	26.105	25.200	22.130	25.795	23.800	27.737
Difference from average (63 years)	— 1.395	— 0.921	—1.826	— 4.896	- 1.231	— 3.226	- 0.711
Number of days of rain	100	116	102	99	105	98	110
Total amount of snow in inches	50.0	49.2	70.7	74.6	31.8	71.3	47.4
Difference from average (63 years)	—17.28	—18.05	- 3.45	7.35	—35.45	- 4.05	—19.85
Number of days of snow	52	37	54	42	40	53	43
Number of fair days	171	181	183	187	185	196	173
Number of days completely clouded	61	59	58	51	44	56	59
Number of auroras observed	5	2	2	3	10	7	3
Possible to see aurora (No. of nights)	184	185	201	224	226	210	170
Number of thunderstorms	26	34	29	34	29	34	19
Number of fogs	22	31	29	29	31	26	28
Number of hours of bright sunshine	2039.9	1958.9	1981.6	2305.0	2128.2	2128.9	1987.6
Number of hours of possible sunshine	4463.3	4474.4	4463.3	4423.3	4463.3	4463.3	4463.3

RURAL AREAS ASSESSED.

TABLE VII. Showing by County Municipalities the rural area of Ontario as returned by Municipal assessors for 1903; also the comparative totals for the Province for the ten years 1894-1903.

Counties and Districts.	Acres of assessed land.			Acres cleared.	Acres woodland.	Acres in swamp, marsh or wasteland.	Per cent. cleared.
	Resident.	Non-resident.	Total.				
Algoma	342,079	93,578	435,657	45,641	337,206	52,810	10.5
Brant	212,301	3,803	216,104	181,557	15,747	18,800	84.0
Bruce	881,408	40,301	921,709	534,760	180,141	206,808	58.0
Carleton	554,894	11,592	566,486	307,975	92,791	165,720	54.4
Dufferin	355,179	4,499	359,678	253,441	39,672	66,565	70.4
Dundas	230,425	6,706	237,131	159,873	44,870	32,388	67.4
Durham	357,195	14,295	371,490	295,822	38,729	36,939	79.6
Elgin	437,760	5	437,765	330,261	99,140	8,364	75.4
Essex	425,080	3,524	428,604	301,877	119,127	7,600	70.4
Frontenac	631,404	61,757	693,161	264,339	256,104	172,718	38.1
Glengarry	286,928	1,355	288,283	187,458	83,896	16,929	65.0
Grenville	261,470	8,406	269,876	172,578	40,116	57,182	63.9
Grey	1,065,380	2,792	1,068,172	663,564	193,777	210,831	62.1
Haldimand	277,871	2,585	280,456	234,157	41,902	4,397	83.5
Haliburton	552,737	13,907	566,644	40,203	326,911	199,530	7.1
Halton	223,594	951	224,545	175,664	28,628	20,253	78.2
Hastings	967,430	84,708	1,052,138	419,915	466,947	165,276	39.9
Huron	794,638	4,761	799,399	643,022	67,834	88,543	80.4
Kent	565,415	3,617	569,032	446,083	103,379	19,570	78.4
Lambton	658,467	1,960	660,427	434,875	204,786	20,766	65.8
Lanark	653,068	20,412	673,480	320,071	198,089	155,320	47.5
Leeds	470,711	2,379	473,090	280,461	129,008	63,621	59.3
Lennox and Addington	430,285	11,706	441,991	283,635	101,967	56,389	64.2
Lincoln	183,975	7,830	191,805	164,339	26,381	1,085	85.7
Manitoulin	227,289	14,517	241,806	41,159	153,766	46,881	17.0
Middlesex	742,087	16,043	758,130	614,141	134,681	9,308	81.0
Muskoka	506,505	39,442	545,947	61,251	380,769	103,927	11.2
Nipissing	280,996	59,695	340,691	30,396	259,539	50,756	8.9
Norfolk	396,423	1,682	398,105	264,380	108,235	25,490	66.4
Northumberland	435,577	1,740	437,317	342,620	46,105	48,592	78.3
Ontario	495,065	6,498	501,563	360,864	39,297	101,402	71.9
Oxford	471,200	43	471,243	385,840	54,084	31,319	81.9
Parry Sound	530,816	54,095	584,911	68,374	434,359	82,178	11.7
Peel	282,611	6,002	288,613	255,133	20,830	12,650	88.4
Perth	514,582	3,442	518,024	437,052	42,925	38,047	84.4
Peterborough	553,578	17,790	571,368	240,569	200,825	129,974	42.1
Prescott	286,598	3,865	290,463	168,149	113,933	8,381	57.9
Prince Edward	224,277	7,286	231,563	193,233	21,896	16,434	83.4
Rainy River	94,123	13,544	107,667	7,571	91,567	8,529	7.0
Renfrew	964,286	45,934	1,010,220	322,877	436,650	250,693	32.0
Russell	233,657	17,348	251,005	106,718	116,639	27,648	42.5
Simcoe	946,122	16,328	962,450	597,680	244,840	119,930	62.1
Stormont	244,875	3,867	248,742	149,727	71,557	27,458	60.2
Thunder Bay	205,167	164,694	369,861	7,012	208,849	154,000	1.9
Victoria	558,852	42,892	601,744	275,528	103,436	222,780	45.8
Waterloo	302,967	4,412	307,379	247,582	38,529	21,268	80.5
Welland	216,722	9,877	226,599	191,279	30,761	4,559	84.4
Wellington	627,156	712	627,868	479,004	56,291	92,573	76.3
Wentworth	267,358	5,318	272,676	217,448	30,407	24,821	79.7
York	535,133	2,301	537,434	435,911	41,802	59,721	81.1
The Province:							
1903	22,963,716	966,796	23,930,512	13,643,069	6,719,720	3,567,723	57.0
1902	22,932,677	794,333	23,727,010	13,570,229	6,684,512	3,472,269	57.2
1901	22,781,710	854,468	23,636,178	13,436,482	6,715,872	3,483,824	56.8
1900	22,728,082	840,022	23,568,104	13,297,206	7,127,363	3,143,535	56.4
1899	22,670,958	780,134	23,451,092	13,111,292	7,149,404	3,190,396	55.9
1898	22,492,838	899,746	23,392,584	12,993,614	7,198,905	3,200,065	55.5
1897	22,403,060	957,368	23,360,428	12,853,081	7,294,026	3,213,321	55.0
1896	22,174,899	997,509	23,172,408	12,671,851	7,264,167	3,236,390	54.7
1895	22,131,895	981,420	23,113,315	12,426,992	7,777,451	2,908,872	53.8
1894	22,032,799	1,006,175	23,038,974	12,292,610	7,859,714	2,886,650	53.4

FALL WHEAT AND SPRING WHEAT.

TABLE VIII. Showing by County Municipalities of Ontario, the area, produce and market value of the crops of Fall Wheat and Spring Wheat for the year 1903, together with the totals for the Province for the past ten years and the average for the twenty-two years, 1882-1903; also the averages per acre.

Counties and Districts.	Fall Wheat.				Spring Wheat.			
	Acres.	Bushels.	Yield per acre.	Market value.	Acres.	Bushels.	Yield per acre.	Market value.
				$				$
*Algoma	207	5,175	25.0	3,886	1,704	27,264	16.0	20,284
Brant	24,124	624,812	25.9	469,234	469	6,097	13.0	4,566
Bruce	30,527	772,383	25.3	580,022	1,701	33,169	19.5	24,678
Carleton	231	4,620	20.0	3,470	10,396	213,118	20.5	158,560
Dufferin	4,368	108,763	24.9	81,681	5,209	103,659	19.9	77,122
Dundas	469	11,115	23.7	8,347	1,181	25,628	21.7	19,067
Durham	1,888	126,110	25.8	94,709	16,885	315,750	18.7	234,918
Elgin	23,124	626,660	27.1	470,621	78	1,560	20.0	1,161
Essex	8,202	164,860	20.1	123,810	614	9,087	14.8	6,761
Frontenac	555	9,102	16.4	6,836	7,491	125,849	16.8	93,632
Glengarry	14	336	24.0	252	4,910	88,871	18.1	66,120
Grenville	21	420	20.0	315	1,611	38,664	24.0	28,766
Grey	21,318	646,859	26.6	485,791	5,470	105,571	19.3	78,545
Haldimand	25,287	584,130	23.1	438,682	514	7,864	15.3	5,851
Haliburton	70	1,239	17.7	930	1,155	17,672	15.3	13,148
Halton	23,344	569,594	24.4	427,765	1,244	23,885	19.2	17,770
Hastings	7,040	142,208	20.2	106,798	9,352	168,336	18.0	125,242
Huron	42,549	1,153,078	27.1	865,961	1,601	30,739	19.2	22,870
Kent	31,864	790,227	24.8	593,460	99	1,574	15.9	1,171
Lambton	12,646	307,298	24.3	230,781	1,063	16,264	15.3	12,100
Lanark	1,532	29,414	19.2	22,090	12,112	227,706	18.8	169,413
Leeds	1,158	29,743	20.1	22,337	4,293	81,138	18.9	60,367
Lennox and Addington	1,798	33,443	18.6	25,116	4,026	72,871	18.1	54,216
Lincoln	15,553	376,383	24.2	282,664	464	6,728	14.5	5,006
Manitoulin	467	11,115	23.8	8,347	1,725	30,705	17.8	22,845
Middlesex	35,370	997,431	28.2	749,073	442	8,840	20.0	6,577
Muskoka	30	465	15.5	349	878	13,872	15.8	10,321
Nipissing	63	1,355	21.5	1,018	1,143	23,432	20.5	17,436
Norfolk	28,120	741,762	26.1	557,063	263	4,418	16.8	3,287
Northumberland	10,978	252,494	23.0	189,623	15,536	257,898	16.6	191,870
Ontario	9,178	251,167	26.5	188,626	20,472	393,062	19.2	292,428
Oxford	32,375	918,588	29.3	712,390	433	9,310	21.5	6,927
Parry Sound	182	3,804	20.9	2,857	1,618	30,095	18.6	22,391
Peel	15,812	436,086	27.2	322,995	5,581	104,365	18.7	77,648
Perth	11,378	1,170,997	28.3	879,419	1,566	32,573	20.8	24,234
Peterborough	8,100	203,280	24.2	152,663	8,166	146,171	17.9	108,741
Prescott	79	1,422	18.0	1,068	5,504	86,963	15.8	64,709
Prince Edward	5,585	103,323	18.5	77,596	5,140	80,698	15.7	60,059
Renfrew	111	8,837	21.5	6,637	29,242	514,659	17.6	382,996
Russell	78	1,872	24.0	1,406	1,640	32,144	19.6	23,915
Simcoe	61,363	1,687,183	27.5	1,267,300	11,557	221,894	19.2	165,089
Stormont	103	1,524	14.8	1,145	2,219	43,492	19.6	32,358
Victoria	5,184	120,269	23.2	90,322	14,095	269,215	19.1	200,296
Waterloo	36,880	837,176	22.7	628,719	479	9,149	19.1	6,807
Welland	15,249	341,578	22.4	256,525	255	5,151	20.2	3,832
Wellington	15,719	427,557	27.2	321,095	5,591	115,734	20.7	86,100
Wentworth	25,717	660,927	25.7	496,356	1,026	17,032	16.6	12,672
York	31,518	920,326	29.2	691,165	20,305	450,771	22.2	335,374
The Province:								
1903	665,028	17,242,763	25.9	12,949,315	248,518	4,650,707	18.7	3,460,126
1902	748,592	20,233,669	27.0	14,305,204	303,115	6,048,024	20.0	4,299,477
1901	911,587	15,943,229	17.5	10,538,474	358,048	5,498,751	15.4	3,674,766
1900	1,068,640	23,369,737	21.9	15,517,505	376,905	6,940,335	18.4	4,681,725
1899	1,049,691	14,439,827	13.8	9,631,365	398,726	7,041,317	17.7	4,682,476
1898	1,048,182	25,158,713	24.0	17,460,147	389,205	6,873,785	17.7	3,706,652
1897	950,222	23,988,051	25.2	18,758,656	323,305	4,868,101	15.1	3,826,927
1896	876,955	15,078,441	17.2	10,705,693	255,361	3,519,322	13.3	2,484,041
1895	743,199	14,155,282	19.0	9,809,610	233,957	3,472,543	15.5	2,423,885
1894	778,992	16,512,106	21.2	9,081,658	230,016	3,367,854	14.6	1,869,120
1882-1903	897,728	18,397,811	20.5	14,375,648	443,211	6,981,235	15.8	5,025,653

* Including Rainy River and Thunder Bay in this and succeeding tables.

BARLEY AND OATS.

TABLE IX.—Showing by County Municipalities of Ontario, the area, produce and market value of the crops of Barley and Oats for the year 1903,, together with the totals for the Province for the past ten years and the average for the twenty-two years, 1882-1903; also the average per acre.

Counties and Districts.	Barley.				Oats.			
	Acres.	Bushels.	Yield per acre.	Market value.	Acres	Bushels.	Yield per acre.	Market value.
								$
Algoma	2,005	60,952	30.4	25,661	11,686	371,615	31.8	108,883
Brant	14,707	472,095	32.1	198,752	27,190	1,158,294	42.6	339,380
Bruce	16,571	619,755	37.4	260,917	104,598	4,403,576	42.1	1,290,248
Carleton	8,819	290,145	32.9	122,151	79,145	3,205,373	40.5	939,174
Dufferin	16,418	636,538	38.7	267,983	69,871	3,137,208	44.9	919,202
Dundas	3,602	128,952	35.8	54,289	35,505	1,512,513	42.6	443,166
Durham	31,884	1,064,926	33.4	448,334	54,065	2,422,112	44.8	709,679
Elgin	11,842	429,865	36.3	180,973	46,363	2,086,335	45.0	611,296
Essex	10,032	301,963	30.1	127,127	66,842	2,747,206	41.1	804,931
Frontenac	7,175	169,330	23.6	71,288	51,202	1,679,426	32.8	492,072
Glengarry	5,505	157,994	28.7	66,515	37,418	1,354,532	36.2	396,878
Grenville	3,139	86,950	27.7	36,606	33,735	1,214,460	36.0	355,837
Grey	26,722	975,353	36.5	410,623	146,894	5,802,313	39.5	1,700,078
Haldimand	5,808	175,982	30.3	74,088	33,559	1,292,022	38.5	378,563
Haliburton	489	10,758	22.0	4,529	6,447	208,828	32.4	61,187
Halton	10,543	391,145	37.1	164,672	26,170	1,117,459	42.7	327,416
Hastings	21,607	598,514	27.7	251,974	64,900	2,316,930	35.7	678,860
Huron	36,443	1,424,921	39.1	599,892	137,691	6,196,095	45.0	1,815,456
Kent	20,767	718,538	34.6	302,504	66,884	2,962,961	44.3	868,148
Lambton	26,339	853,384	32.4	359,275	90,656	3,925,405	43.3	1,150,144
Lanark	5,490	181,170	33.0	76,273	49,715	1,904,085	38.3	557,897
Leeds	6,348	178,379	28.1	75,098	49,924	1,737,355	34.8	509,045
Lennox and Addington	18,245	483,493	26.5	203,551	44,040	1,528,188	34.7	447,759
Lincoln	1,510	46,357	30.7	19,516	21,427	814,226	38.0	238,568
Manitoulin	1,912	61,566	32.2	25,919	6,406	232,538	36.3	68,134
Middlesex	25,219	923,015	36.6	388,589	98,192	4,644,482	47.3	1,360,833
Muskoka	691	17,068	24.7	7,186	12,982	408,933	31.5	119,817
Nipissing	771	23,284	30.2	9,803	6,176	239,011	38.7	70,030
Norfolk	7,432	252,688	34.0	106,382	36,899	1,468,580	39.8	430,294
Northumberland	18,874	564,333	29.9	237,584	53,365	2,102,581	39.4	616,056
Ontario	28,850	928,970	32.2	391,096	83,355	3,767,646	45.2	1,103,920
Oxford	21,312	818,381	38.4	344,538	84,946	4,119,881	48.5	1,207,125
Parry Sound	1,062	31,117	29.3	13,100	14,941	496,041	33.2	145,340
Peel	31,418	1,074,496	34.2	452,363	49,365	2,206,616	44.7	646,538
Perth	28,877	1,146,417	39.7	482,642	102,619	4,812,831	46.9	1,410,159
Peterborough	9,685	308,952	31.9	130,069	46,196	1,778,546	38.5	521,114
Prescottt	3,801	96,926	25.5	40,806	39,372	1,287,464	32.7	377,227
Prince Edward	16,991	446,863	26.3	188,129	22,631	746,823	33.0	218,819
Renfrew	3,501	82,274	23.5	34,637	53,745	1,623,099	30.2	475,568
Russell	2,559	77,538	30.3	32,643	22,811	839,445	36.8	245,957
Simcoe	51,457	1,831,869	35.6	771,217	109,260	4,599,846	42.1	1,347,755
Stormont	3,627	112,800	31.1	47,489	28,683	1,138,715	39.7	333,644
Victoria	16,978	553,483	32.6	233,016	65,460	2,677,314	40.9	784,453
Waterloo	20,465	789,919	38.6	332,569	58,968	2,665,354	45.2	780,949
Welland	1,653	44,300	26.8	18,650	25,470	916,920	36.0	268,658
Wellington	39,432	1,557,564	39.5	655,734	133,156	6,018,651	45.2	1,763,464
Wentworth	12,167	420,978	34.6	177,232	34,056	1,515,492	44.5	444,039
York	49,065	1,756,527	35.8	739,498	93,684	4,468,727	47.7	1,309,337
The Province:								
1903	709,839	24,378,817	34.3	10,263,482	2,638,665	109,874,053	41.6	32,193,097
1902	661,622	21,890,602	33.1	9,872,661	2,500,758	106,431,439	42.6	37,038,141
1901	637,201	16,761,076	26.3	7,542,484	2,408,464	78,334,490	32.5	28,357,085
1900	577,810	16,909,751	29.3	6,577,893	2,398,834	89,693,327	37.4	23,768,732
1899	490,374	14,830,891	30.2	5,858,202	2,363,778	89,897,724	38.0	24,901,670
1898	438,784	12,663,668	28.9	4,812,194	2,376,360	86,858,293	36.6	22,409,440
1897	451,515	12,021,779	26.6	3,245,880	2,432,491	86,318,128	35.5	19,502,897
1896	462,792	12,669,744	27.4	4,003,639	2,425,107	82,979,992	34.2	16,595,998
1895	478,046	12,090,507	25.3	4,884,565	2,373,309	84,697,566	35.7	24,646,992
1891	486,261	10,980,404	22.6	4,447,064	2,342,766	70,172,516	30.0	21,613,135
1882-1903	626,966	16,853,234	26.9	7,999,114	2,031,386	72,395,734	35.6	22,754,712

PEAS AND BEANS.

TABLE X. Showing by County Municipalities of Ontario, the area, produce and market value of the crops of Peas and Beans for the year 1903, together with the totals for the Province for the past ten years and the average for the twenty-two years, 1882-1903; also the averages per acre.

Counties and Districts.	Peas.				Beans.			
	Acres.	Bushels.	Yield per acre.	Market value.	Acres.	Bushels.	Yield per acre.	Market value.
				$				$
Algoma	2,660	52,136	19.6	33,523	15	225	15.0	317
Brant	1,976	40,903	20.7	26,300	401	7,699	19.2	10,855
Bruce	38,951	946,509	21.3	608,605	45	900	20.0	1,269
Carleton	3,789	64,413	17.0	41,417	582	9,603	16.5	13,540
Dufferin	11,342	290,355	25.6	186,698	58	1,160	20.0	1,635
Dundas	584	12,556	21.5	8,073	80	1,440	18.0	2,030
Durham	22,088	490,354	22.2	315,297	584	10,220	17.5	14,410
Elgin	1,911	33,423	17.5	21,491	5,224	94,032	18.0	132,585
Essex	1,449	23,474	16.2	15,091	510	8,568	16.8	12,081
Frontenac	1,606	26,981	16.8	17,349	274	4,795	17.5	6,761
Glengarry	1,586	19,032	12.0	12,238	93	1,767	19.0	2,491
Grenville	799	16,619	20.8	10,686	85	1,700	20.0	2,397
Grey	43,077	1,046,771	24.3	673,074	139	2,780	20.0	3,920
Haldimand	12,919	218,331	16.9	140,387	357	5,998	16.8	8,457
Haliburton	1,427	25,258	17.7	16,241	11	220	20.0	310
Halton	4,516	89,417	19.8	57,495	46	782	17.0	1,103
Hastings	7,808	131,174	16.8	84,345	600	12,600	21.0	17,766
Huron	11,209	232,026	20.7	149,193	287	4,477	15.6	6,313
Kent	2,157	48,748	22.6	31,345	33,275	615,588	18.5	867,979
Lambton	3,508	58,233	16.6	37,444	1,555	26,902	17.3	37,932
Lanark	7,429	124,064	16.7	79,773	295	5,133	17.4	7,238
Leeds	2,387	43,205	18.1	27,781	218	4,796	22.0	6,762
Lennox and Addington	2,212	41,586	18.8	26,740	196	3,077	15.7	4,339
Lincoln	4,935	80,441	16.3	51,724	136	2,883	21.2	4,065
Manitoulin	4,039	93,705	23.2	60,252	48	960	20.0	1,354
Middlesex	4,660	96,928	20.8	62,325	1,529	29,968	19.6	42,255
Muskoka	2,795	61,211	21.9	39,359	21	336	16.0	474
Nipissing	1,831	44,493	24.3	28,609	18	360	20.0	508
Norfolk	2,762	51,373	18.6	33,033	1,193	24,695	20.7	34,820
Northumberland	15,953	338,204	21.2	217,465	827	12,405	15.0	17,491
Ontario	13,110	289,731	22.1	186,297	129	2,890	22.4	4,075
Oxford	3,606	76,447	21.2	49,155	132	2,904	22.0	4,096
Parry Sound	3,633	82,106	22.6	52,794	34	680	20.0	959
Peel	6,935	138,720	20.0	89,197	13	299	23.0	422
Perth	9,212	209,112	22.7	134,459	16	320	20.0	451
Peterborough	21,549	519,331	24.1	333,930	66	990	15.0	1,396
Prescott	1,739	27,302	15.7	17,555	376	7,520	20.0	10,603
Prince Edward	2,142	39,413	18.4	25,343	699	13,910	19.9	19,613
Renfrew	22,031	310,637	14.1	199,740	272	4,406	16.2	6,212
Russell	1,106	18,360	16.6	11,805	133	2,926	22.0	4,126
Simcoe	40,343	1,089,261	27.0	700,395	336	6,955	20.7	9,807
Stormont	166	8,341	17.9	5,363	82	1,640	20.0	2,312
Victoria	20,653	446,105	21.6	286,846	176	3,520	20.0	4,963
Waterloo	3,132	68,904	22.0	44,305	12	240	20.0	338
Welland	4,211	72,850	17.3	46,843	1,510	25,670	17.0	36,195
Wellington	18,148	460,959	25.4	296,397	27	567	21.0	799
Wentworth	4,293	82,126	19.2	53,000	81	1,831	22.6	2,582
York	6,158	142,722	22.1	91,770	243	4,909	20.2	6,922
The Province.								
1903	407,133	8,924,650	21.9	5,738,550	53,039	978,246	18.4	1,379,327
1902	532,639	7,664,679	14.4	7,664,679	53,964	670,633	12.4	905,355
1901	602,724	10,089,173	16.7	10,089,173	53,688	824,122	15.4	1,030,153
1900	661,592	14,058,198	21.2	14,058,198	44,053	820,373	18.6	817,912
1899	743,139	15,140,790	20.4	15,140,790	40,485	651,009	16.1	703,090
1898	865,951	13,521,263	15.6	13,521,263	45,220	759,657	16.8	531,760
1897	896,735	13,867,093	15.5	13,867,093	50,591	981,340	19.4	639,834
1896	829,601	17,493,148	21.1	17,493,148	68,369	1,197,535	17.5	819,114
1895	799,963	15,568,103	19.5	15,568,103	72,747	1,494,179	20.5	1,414,988
1894	785,007	14,022,888	17.9	14,022,888	59,281	827,514	14.0	913,575
1882-1903	696,708	13,549,998	19.4	7,865,922	40,252	686,308	17.1	723,608

RYE AND BUCKWHEAT.

TABLE XI. Showing by County Municipalities of Ontario, the area, produce and market value of the crops of Rye and Buckwheat for the year 1903, together with the totals for the Province for the past ten years, and the average for the twenty-two years. 1882-1903; also the average per acre.

Counties and Districts.	Rye.				Buckwheat			
	Acres.	Bushels.	Yield per acre.	Market value	Acres	Bushels.	Yield per acre.	Market value.
				$				$
Algoma	66	1,254	19.0	610	32	384	12.0	170
Brant	5,299	89,023	16.8	43,265	1,325	22,260	16.8	9,861
Bruce	1,132	24,451	21.6	11,883	1,176	23,990	20.4	10,628
Carleton	1,010	15,655	15.5	7,608	2,854	71.350	25.0	31,608
Dufferin	6,777	125,375	18.5	60,932	1,736	39,060	22.5	17,304
Dundas	461	8,851	19.2	4,302	1,735	41,640	24.0	18,447
Durham	10,711	171,376	16.0	83,289	3,129	68,838	22.0	30,495
Elgin	5,178	107,185	20.7	52,092	2,263	45,260	20.0	20,050
Essex	2,031	40,620	20.0	19,741	455	6,962	15.3	3,084
Frontenac	4,219	63,285	15.0	30,757	1,439	34,536	24.0	15,299
Glengarry	200	3,000	15.0	1,458	541	9,522	17.6	4,218
Grenville	1,450	22,040	15.2	10,711	3,876	85,272	22.0	37,776
Grey	1,114	19,384	17.4	9,421	4,220	86,088	20.4	38,137
Haldimand	6,561	99,727	15.2	48,467	965	19,783	20.5	8,764
Haliburton	295	5,015	17.0	2,437	232	3,944	17.0	1,747
Halton	1,469	25,561	17.4	12,423	135	2,025	15.0	897
Hastings	10,649	154,411	14.5	75,043	4,718	92,945	19.7	41,175
Huron	2,910	61,692	21.2	29,982	1,336	30,728	23.0	13,613
Kent	1,534	31,600	20.6	15,358	500	10,500	21.0	1,652
Lambton	1,176	22,109	18.8	10,745	528	9,134	17.3	4,046
Lanark	1,079	19,638	18.2	9,544	3,794	68,671	18.1	30,421
Leeds	1,557	24,601	15.8	11,956	3,667	91,675	25.0	40,612
Lennox & Addington	5,683	82,404	14.5	40,048	4,474	107,376	24.0	47,568
Lincoln	5,023	94,935	18.9	46,139	212	3,922	18.5	1,737
Manitoulin	92	1,840	20.0	894	20	400	20.0	177
Middlesex	1,006	19,416	19.3	9,436	914	18,371	20.1	8,138
Muskoka	134	2,144	16,0	1,042	152	2,736	18.0	1,212
Nipissing	39	780	20.0	379	43	860	20.0	381
Norfolk	15,262	260,980	17.1	126,836	8,620	161,194	18.7	71,409
Northumberland	14,674	190,762	13.0	92,710	7,427	178,248	24.0	78,964
Ontario	10,128	177,240	17.5	86,139	3,109	70,263	22.6	31,127
Oxford	3,477	65,368	18.8	31,769	1,678	34,231	20.4	15,164
Parry Sound	197	3,802	19.3	1,848	78	1,560	20.0	691
Peel	6,993	128,671	18.4	62,534	1,247	24,910	20.0	11,048
Perth	186	2,976	16.0	1,446	210	3,360	16.0	1,488
Peterborough	3,056	49,202	16.1	23,912	2,026	37,684	18.6	16 694
Prescott	101	1,515	15.0	736	1,342	22,009	16.4	9,750
Prince Edward	11,198	120,938	10.8	58,776	5,431	129,801	23.9	57,502
Renfrew	2,296	36,736	16.0	17,854	1,006	14,889	14.8	6,596
Russell	73	1,241	17.0	603	1,239	29,736	24.0	13,173
Simcoe	7,080	128,148	18.1	62,280	5,095	108,014	21.2	47,850
Stormont	72	1,656	23.0	805	2,464	66,528	27.0	29,472
Victoria	3,044	49,313	16.2	23,966	2,258	56,450	25.0	25,007
Waterloo	2,819	57,508	20.4	27,949	242	5,614	23.2	2,487
Welland	5,884	105,912	18.0	51,473	1,503	26,753	17.8	11,852
Wellington	1,850	33,485	18.1	16,274	1,009	19,877	19.7	8,806
Wentworth	5,195	93,510	18.0	45,446	1,143	20,117	17.6	8,912
York	6,837	124,433	18.2	60,475	1,889	39,669	21.0	17,573
The Province.								
1903	179,277	2,970,768	16.6	1,443,793	95,487	2,049,169	21.5	907,782
1902	189,318	3,509,332	18.5	1,772,213	93,324	1,911,683	20.5	917,608
1901	158,236	2,545,268	16.1	1,254,817	88,266	1,757,071	19.9	850,722
1900	142,213	2,357,635	16.6	1,143,453	102,570	1,874,261	18.3	899,652
1899	137,824	2,284,846	16.6	1,142,423	132,082	2,203,299	16.7	1,057,591
1898	165,089	2,673,234	16.2	1,162,857	150,394	2,373,645	15.8	906,732
1897	187,785	3,382,005	18.0	1,275,016	151,669	3.464,186	22.8	1,039,256
1896	148,680	2,230,873	15.0	816,500	145,606	2,603,669	17.9	794,119
1895	120,350	1,900,117	15.8	866,453	135,262	2,791,749	20.6	1,027,364
1894	90,144	1,386,606	15.4	612,880	145,268	2,534,335	17.4	993,450
1882-1903	122,583	2,009,094	16.4	1,031,610	99,598	1,936,534	19.5	781,000

CORN.*

TABLE XII. Showing by County Municipalities of Ontario, the area, produce and market value of the crops of corn for husking and for fodder for the year 1903, together with the totals for the Province for the past ten years and the average for the twelve years, 1892-1903, also the averages per acre.

Counties and Districts.	Corn for husking.				Corn for silo and fodder.			
	Acres.	Bushels.	Yield per acre.	Market value.	Acres.	Tons (green).	Tons per acre.	Market value.
				$				$
Algoma	61	2,440	40	900	168	1,680	10.00	3,360
Brant	7,055	557,345	79	205,660	4,073	50,057	12.29	100,114
Bruce	700	42,000	60	15,498	3,989	45,634	11.44	91,268
Carleton	1,888	79,296	42	29,260	7,002	112,032	16.00	224,064
Dufferin	116	5,800	50	2,140	476	3,570	7.50	7,140
Dundas	3,904	230,336	59	84,994	6,292	75,504	12.00	151,008
Durham	2,366	132,496	56	48,891	4,186	51,739	12.36	103,478
Elgin	28,555	2,455,730	86	906,164	4,696	50,200	10.69	100,400
Essex	84,742	7,626,780	90	2,814,282	2,533	15,198	6.00	30,396
Frontenac	3,006	141,282	47	52,133	5,423	58,135	10.72	116,270
Glengarry	1,223	48,920	40	18,052	5,264	72,643	13.80	145,286
Grenville	4,477	335,775	75	123,901	6,696	84,838	12.67	169,676
Grey	685	41,100	60	15,166	5,473	73,886	13.50	147,772
Haldimand	4,324	328,624	76	121,262	2,310	29,106	12.60	58,212
Haliburton	137	8,494	62	3,134	140	1,680	12.00	3,360
Halton	1,059	62,481	59	23,056	4,492	50,894	11.33	101,788
Hastings	7,873	582,602	74	214,980	7,805	88,431	11.33	176,862
Huron	2,428	160,248	66	59,132	10,577	145,434	13.75	290,868
Kent	73,522	5,808,238	79	2,143,240	2,881	23,451	8.14	46,902
Lambton	22,078	1,722,084	78	635,449	4,826	53,472	11.08	106,944
Lanark	1,575	63,000	40	23,247	6,846	82,152	12.00	164,304
Leeds	7,125	399,000	56	147,231	7,642	113,560	14.86	227,120
Lennox and Addington	4,491	238,023	53	87,831	2,713	28,297	10.43	56,594
Lincoln	9,265	667,080	72	246,153	1,716	18,533	10.80	37,066
Manitoulin	81	3,645	45	1,345	140	1,680	12.00	3,360
Middlesex	21,813	1,810,479	83	668,067	10,167	107,059	10.53	214,118
Muskoka	283	10,754	38	3,968	164	1,148	7.00	2,296
Nipissing	73	2,920	40	1,078	66	660	10.00	1,320
Norfolk	23,717	1,921,077	81	708,877	4,654	46,168	9.92	92,336
Northumberland	4,920	290,280	59	107,113	5,023	59,020	11.75	118,040
Ontario	2,452	174,092	71	64,240	7,235	83,420	11.53	166,840
Oxford	14,310	1,044,630	73	385,468	10,344	123,094	11.90	246,188
Parry Sound	178	5,340	30	1,970	135	1,350	10.00	2,700
Peel	567	34,020	60	12,553	4,343	61,497	14.16	122,994
Perth	488	29,280	60	10,804	8,864	121,880	13.75	243,760
Peterborough	493	36,975	75	13,644	2,470	30,134	12.20	60,268
Prescott	3,093	142,278	46	52,501	1,981	25,753	13.00	51,506
Prince Edward	9,673	483,650	50	178,467	3,447	38,331	11.12	76,662
Renfrew	682	28,644	42	10,570	2,592	28,512	11.00	57,024
Russell	898	35,920	40	13,254	2,159	26,772	12.40	53,544
Simcoe	1,493	111,975	75	41,319	4,219	54,003	12.80	108,006
Stormont	2,015	137,020	68	50,560	5,256	68,328	13.00	136,656
Victoria	324	16,200	50	5,978	2,695	32,340	12.00	64,680
Waterloo	1,245	68,475	55	25,267	5,162	80,889	15.67	161,778
Welland	11,152	747,184	67	275,711	1,675	14,439	8.62	28,878
Wellington	353	24,357	69	8,988	4,264	55,944	13.12	111,888
Wentworth	4,801	331,269	69	122,238	5,502	59,697	10.85	119,394
York	1,165	58,250	50	21,494	8,951	112,156	12.53	224,312
The Province:								
1903	378,924	29,287,888	77.3	10,807,230	209,727	2,564,400	12.23	5,128,800
1902	371,959	20,512,194	55.1	8,327,951	209,859	2,611,334	12.44	5,222,668
1901	323,923	24,838,105	76.7	9,438 480	197,932	2,359,514	11.92	4,719,028
1900	330,772	27,093,561	81.9	8,588,659	179,798	2,147,532	11.94	4,295,064
1899	333,590	21,673,234	65.0	4,291,300	171,935	1,697,755	9.87	3,395,510
1898	330,748	23,442,593	70.9	4,711,961	189,948	2,128,073	11.20	4,256,146
1897	333,030	24,663,998	73.6	4,858,808	209,005	2,669,822	12.77	5,339,644
1896	317,667	24,071,364	75.8	4,717,987	178,962	1,948,780	10.89	3,897,560
1895	302,929	24,819,899	81.9	5,609,296	149,899	1,775,654	11.85	3,551,308
1894	267,348	16,275,352	60.9	4,247,867	111,361	1,049,765	9.43	2,099,530
1892-1903	307,637	21,831,721	71.0	6,023,519	166,307	1,912,588	11.50	3,825,277

* The combined average area for corn for the twenty-two years 1882-1903, is 347,551 acres, the average value of the produce for the same period being $7,055,931.

POTATOES AND CARROTS.

TABLE XIII. Showing by County Municipalities of Ontario, the area, produce and market value of the crops of Potatoes and Carrots for the year 1903, together with the totals for the Province for the past ten years and the average for the twenty-two years 1882-1903; also the averages per acre.

Counties and Districts.	Potatoes.				Carrots.			
	Acres.	Bushels.	Yield per acre.	Market Value.	Acres.	Bushels.	Yield per acre.	Market Value.
				$				$
Algoma	1,072	222,976	208	98,332	112	26,992	241	3,374
Brant	2,079	264,033	127	116,439	64	21,952	343	2,744
Bruce	3,535	406,525	115	179,278	323	134,368	416	16,796
Carleton	4,063	507,875	125	223,973	176	59,488	338	7,436
Dufferin	2,446	406,036	166	179,062	84	19,740	235	2,467
Dundas	2,083	222,881	107	98,291	147	42,336	288	5,292
Durham	2,671	371,269	139	163,730	176	71,632	407	8,954
Elgin	2,596	223,256	86	98,456	136	40,800	300	5,100
Essex	2,704	219,024	81	96,590	84	16,800	200	2,100
Frontenac	3,464	370,648	107	163,456	237	47,400	200	5,925
Glengarry	1,928	152,312	79	67,170	127	38,100	300	4,762
Grenville	2,827	288,354	102	127,164	94	28,200	300	3,525
Grey	5,378	720,652	134	317,808	352	115,104	327	14,388
Haldimand	1,251	122,598	98	54,066	54	15,120	280	1,890
Haliburton	525	70,875	135	31,256	29	5,800	200	725
Halton	1,423	190,682	134	84,091	71	30,175	425	3,772
Hastings	5,102	576,526	113	254,248	288	86,400	300	10,800
Huron	3,934	535,024	136	235,946	260	95,420	367	11,927
Kent	2,942	220,650	75	97,307	124	40,176	324	5,022
Lambton	2,966	263,974	89	116,413	202	69,892	346	8,736
Lanark	2,579	268,216	104	118,283	94	31,208	332	3,901
Leeds	3,076	359,892	117	158,712	147	46,158	314	5,770
Lennox and Addington	3,067	315,901	103	139,312	88	22,528	256	2,816
Lincoln	1,917	174,447	91	76,931	154	59,598	387	7,450
Manitoulin	486	84,078	173	37,078	62	17,050	275	2,131
Middlesex	5,254	541,162	103	238,652	263	93,365	355	11,671
Muskoka	1,126	180,160	160	79,451	81	25,191	311	3,149
Nipissing	958	155,196	162	68,441	58	17,400	300	2,175
Norfolk	2,780	250,200	90	110,338	251	84,336	336	10,542
Northumberland	4,529	615,944	136	271,631	326	111,818	343	13,977
Ontario	3,493	468,062	134	206,415	122	43,920	360	5,490
Oxford	2,945	359,290	122	158,447	53	18,762	354	2,345
Parry Sound	1,164	180,420	155	79,565	85	28,305	333	3,538
Peel	3,359	453,465	135	199,978	236	78,588	333	9,823
Perth	3,047	466,191	153	205,590	133	50,540	380	6,318
Peterborough	2,540	381,000	150	168 021	292	103,368	354	12,921
Prescott	2,578	317,094	123	139,838	146	36,500	250	4,563
Prince Edward	2,066	216,930	105	95,666	242	64,614	267	8,077
Renfrew	3,290	378,350	115	166,852	138	27,600	200	3,450
Russell	1,019	114,128	112	50,330	114	45,600	400	5,700
Simcoe	6,897	931,095	135	410,613	509	214,289	421	26,786
Stormont	1,824	156,864	86	69,177	123	35,424	288	4,428
Victoria	2,668	413,540	155	182,371	151	58,135	385	7,267
Waterloo	2,841	428,991	151	189,185	127	54,737	431	6,842
Welland	2,996	251,664	84	110,984	61	13,725	225	1,716
Wellington	4,513	645,359	143	284,603	227	76,726	338	9,591
Wentworth	3,137	354,481	113	156,326	148	62,456	422	7,807
York	7,873	858,157	109	378,447	234	84,942	363	10,618
The Province.								
1903	139,011	16,676,447	120	7,354,313	7,805	2,612,778	335	326,597
1902	144,733	12,942,502	89	7,312,514	8,625	3,227,161	374	403,395
1901	154,155	18,116,637	118	7,717,687	9,221	3,199,967	347	399,996
1900	163,754	21,476,439	131	5,605,351	10,320	3,469,123	336	433,640
1899	168,148	19,933,366	119	6,538,144	11,891	3,674,035	309	459,254
1898	169,946	14,358,625	84	6,332,154	12,418	4,313,861	347	539,233
1897	169,333	16,100,797	95	6,424,218	12,025	4,433,628	369	554,204
1896	178,965	21,305,477	119	5,582,035	12,333	4,618,441	374	577,305
1895	184,647	29,390,884	159	5,936,959	13,002	4,581,373	352	572,672
1894	167,253	17,163,130	103	6,075,748	11,186	3,716,140	332	464,518
1882-1903	158,306	18,230,553	115	7,315,217	10,559	3,692,672	350	461,584

MANGEL-WURZELS AND TURNIPS.

TABLE XIV. Showing by County Municipalities of Ontario, the area, produce and market-value of the crops of Mangel-Wurzels and Turnips for the year 1903, together with the totals for the Province for the past ten years and the average for the twenty-two years, 1882-1903; also the averages per acre.

Counties and Districts.	Mangel-Wurzels.				Turnips.			
	Acres.	Bushels.	Yield per acre.	Market value.	Acres.	Bushels.	Yield per acre.	Market value.
				$				
Algoma	84	42,000	500	3,360	739	313,336	424	[illegible]
Brant	1,784	952,656	534	76,212	3,255	833,280	256	83,328
Bruce	4,339	2,321,365	535	185,709	7,842	4,211,154	537	421,115
Carleton	1,283	506,785	395	40,543	2,230	880,850	395	88,085
Dufferin	731	334,067	457	26,725	4,844	2,480,128	512	248,013
Dundas	278	98,412	354	7,873	139	55,600	400	5,560
Durham	2,469	1,348,074	546	107,846	5,465	3,093,190	566	309,319
Elgin	1,321	620,870	470	49,670	388	150,544	388	15,054
Essex	781	329,582	422	26,367	129	25,800	200	2,580
Frontenac	562	167,476	298	13,398	392	92,120	235	9,212
Glengarry	341	153,450	450	12,276	309	139,050	450	13,905
Grenville	341	121,055	355	9,684	132	56,760	430	5,676
Grey	4,221	2,342,655	555	187,412	11,088	7,029,792	634	702,979
Haldimand	695	290,510	418	23,241	118	30,326	257	3,033
Haliburton	43	12,900	300	1,032	175	49,000	280	4,900
Halton	1,796	1,043,476	581	83,478	1,429	587,319	411	58,732
Hastings	1,242	525,366	423	42,029	2,026	913,726	451	91,373
Huron	6,617	4,142,242	626	331,379	7,317	3,965,814	542	396,581
Kent	1,090	390,220	358	31,218	226	83,394	369	8,339
Lambton	2,326	1,004,832	432	80,386	301	109,564	364	10,956
Lanark	719	253,807	353	20,305	1,215	634,230	522	63,423
Leeds	628	303,321	483	24,266	592	235,616	398	23,562
Lennox and Addington	518	175,084	338	14,007	418	142,120	340	14,212
Lincoln	712	304,024	427	24,322	212	51,092	241	5,109
Manitoulin	53	20,140	380	1,612	372	170,004	457	17,000
Middlesex	3,584	1,856,512	518	148,521	2,128	1,108,688	521	110,869
Muskoka	80	30,180	381	2,438	648	270,216	417	27,022
Nipissing	73	29,200	400	2,336	295	118,000	400	11,800
Norfolk	1,139	575,195	505	46,016	1,320	414,480	314	41,448
Northumberland	1,810	945,760	511	75,661	4,456	2,192,352	492	219,235
Ontario	3,816	1,969,152	512	157,532	11,353	6,039,796	532	603,980
Oxford	3,787	2,257,052	596	180,564	6,356	3,387,748	533	338,775
Parry Sound	73	31,609	433	2,529	947	439,408	464	43,941
Peel	1,774	926,028	522	71,082	1,940	985,520	508	98,552
Perth	5,504	3,340,928	607	267,274	5,323	3,023,464	568	302,346
Peterborough	1,513	649,077	429	51,926	2,164	1,097,148	507	109,715
Prescott	214	79,300	325	6,344	284	96,276	339	9,628
Prince Edward	564	187,812	333	15,025	197	64,025	325	6,402
Renfrew	725	190,675	263	15,254	967	263,024	272	26,302
Russell	349	165,775	475	13,262	759	341,550	450	34,155
Simcoe	4,203	2,349,477	559	187,958	9,142	5,284,076	578	528,408
Stormont	175	11,825	239	3,346	127	25,460	200	2,546
Victoria	1,993	996,500	500	79,720	5,218	2,593,316	497	259,335
Waterloo	2,624	1,416,960	540	113,357	4,897	2,399,530	490	239,953
Welland	446	165,466	371	13,237	106	23,850	225	2,385
Wellington	4,398	2,383,716	542	190,697	14,819	8,372,735	565	837,273
Wentworth	2,152	1,101,824	512	88,146	2,148	710,988	331	71,099
York	4,858	2,273,544	468	181,884	7,522	3,730,912	496	373,091
The Province:								
1903	80,918	41,768,239	516	3,341,459	134,169	69,316,341	515	6,931,634
1902	76,553	39,140,924	511	3,131,274	136,725	71,740,204	525	7,174,020
1901	61,095	29,683,324	486	2,374,666	145,909	68,287,467	468	5,828,747
1900	54,543	24,728,525	453	1,978,282	156,583	59,330,395	379	5,933,040
1899	53,401	20,898,387	391	1,671,871	153,440	58,078,390	379	5,807,839
1898	47,923	21,957,564	458	1,756,605	151,601	64,727,882	427	6,472,788
1897	41,175	18,103,387	440	1,448,271	149,336	68,297,148	457	8,829,715
1896	36,101	16,849,401	467	1,347,952	148,234	69,814,841	471	6,981,484
1895	34,383	15,961,502	464	1,276,920	151,806	63,496,702	418	6,349,670
1894	27,670	11,532,127	417	922,570	147,657	61,694,487	418	6,169,449
1882-1903	34,217	15,678,972	458	1,254,318	126,883	54,777,894	432	5,477,789

HAY AND CLOVER—ALL FIELD CROPS.

TABLE XV. Showing by County Municipalities of Ontario, the area, produce and market value of the crop of Hay and Clover for the year 1903, together with the totals for the Province for the past ten years and the average for the twenty-two years 1882-1903; also the average per acre. It also shows the aggregate area and the market value of all the field crops enumerated in Table viii-xv.

Counties and Districts.	Hay and Clover.				All Field Crops.		
	Acres.	Tons	Yield per acre.	Market value.	Acres.	Market value.	Market value per acre
				$		$	$. c.
Algoma	18,955	28,053	1.48	222,741	39,566	556,735	14.07
Brant	32,609	60,979	1.87	484,173	126,410	2,170,853	17.17
Bruce	109,584	164,376	1.50	1,305,145	325,013	5,003,059	15.39
Carleton	69,288	110,861	1.60	880,236	192,756	2,811,125	14.58
Dufferin	44,240	61,936	1.40	491,772	168,746	2,569,876	15.23
Dundas	42,094	64,825	1.54	514,710	98,554	1,425,449	14.46
Durham	44,273	81,905	1.85	650,326	205,840	3,323,675	16.15
Elgin	64,341	124,822	1.94	991,086	198,016	3,656,199	18.46
Essex	42,627	77,581	1.82	615,993	223.735	4,700,937	21.01
Frontenac	80,420	113,392	1.41	900,332	167,465	1,994,720	11.91
Glengarry	52,555	83,037	1.58	659,314	112,014	1,470,935	13.13
Grenville	41,257	43,320	1.05	343,961	100,540	1,266,681	12.60
Grey	137,667	188,604	1.37	1,497,516	416,818	6,282,630	15.07
Haldimand	58,986	83,170	1.41	660,370	153,708	2,025,333	13.18
Haliburton	12,152	11,666	.96	92,628	23,327	237,564	10.18
Halton	33,661	55,877	1.66	443,663	111,398	1,808,121	16.23
Hastings	93 594	134,646	1.44	1,069,089	244,514	3,240,584	13.25
Huron	117,581	182,173	1.55	1,446,454	382,690	6,275,567	16.40
Kent	71,149	143,721	2.02	1,141,145	309,014	6,157,790	19.93
Lambton	82,051	135,384	1.65	1,074,949	252,221	3,876,300	15.37
Lanark	64,938	89,614	1.38	711,535	159,419	2,057,647	12.91
Leeds	69,478	101,438	1.46	805,418	158,540	2,146,037	13.54
Lennox & Addington	81,740	110.349	1.35	876,171	173,709	2,040,280	11.75
Lincoln	42,357	66,077	1.56	524,651	105,593	1,571,101	14.88
Manitoulin	16,135	19,523	1.21	155,013	32,038	405,461	12.66
Middlesex	104,807	178,172	1.70	1,414,686	315,348	5,433,810	17.23
Muskoka	23,781	23,305	.98	185,042	43,846	483,126	11.02
Nipissing	12,462	15,079	1.21	119,727	24,069	335,038	13.92
Norfolk	46,967	83,132	1.77	660,068	181,679	3,032,749	16.69
Northumberland	60,768	94,190	1.55	747,869	219,496	3,195,295	14.56
Ontario	57,786	94,769	1.64	752,466	254,918	4,240,681	16.64
Oxford	67,787	132,185	1.95	1,049,549	253,541	4,732,499	18.67
Parry Sound	24,650	31,306	1.27	248,570	48,977	622,793	12.72
Peel	42,412	76,766	1.81	609,522	171,996	2,790,249	16.22
Perth	79,771	126,038	1.58	1,000,742	287,194	4,971,132	17.31
Peterborough	48,189	72,765	1.51	577,754	156,805	2,282,778	14.56
Prescott	52,696	70,086	1.33	556,483	113,336	1,343,308	11.85
Prince Edward	37,821	64,674	1.71	513,511	123,827	1,599,627	12.92
Renfrew	78.552	107,616	1.37	854,471	199,450	2,264,073	11.35
Russell	29,177	45,808	1.57	363,716	64,114	867,589	13.53
Simcoe	94,284	138,597	1.47	1,100,460	407,238	6,775,243	16.64
Stormont	41,070	70,230	1.71	557,626	88,306	1,276,921	14.46
Victoria	48,093	60,116	1.25	477,321	188,990	2,725,541	14.42
Waterloo	46,039	78,727	1.71	625,092	185,932	3,185,597	17.13
Welland	46,650	73,707	1.58	585,234	118,821	1,712,173	14.41
Wellington	93,357	148,438	1.59	1,178,598	336,863	5,770,313	17.13
Wentworth	43,073	77,101	1.79	612,182	144,639	2,417,431	16.71
York	79.781	136,426	1.71	1,083,222	320,383	5,525,182	17.25
The Province.							
1903	2,783,565	4,336,562	1.56	34,432,302	8,731,405	136,657,807	15.65
1902	2,646,202	4,955,438	1.87	40,386,820	8,677,988	146,421,171	16.87
1901	2,557,263	4,632,317	1.81	37,012,213	8,667,512	128,325,648	14.81
1900	2,526,566	3,133,045	1.24	26,568,222	8,794,953	114,758,761	13.05
1899	2,505,422	3,498,705	1.40	27,010,003	8,753,926	105,771,321	12.08
1898	2,453,503	4,399,063	1.79	27,362,172	8,835,272	110,528,947	12.51
1897	2,341,488	3,811,518	1.63	27,366,699	8,701,705	106,952,471	12.29
1896	2,426,711	2,260,240	.93	21,879,123	8,511.444	88,900,135	10.44
1895	2,537,674	1,849,914	.73	22,753,942	8,321,173	99,655,895	11.98
1894	2,576,943	3,575,200	1.39	27,028,512	8,227,153	94,055,392	11.43
1882-1903	2,433,752	3,492,169	1.43	31,206,441	8,069,700	113,928,804	14.12

RATIOS OF AREAS UNDER CROP.

TABLE XVI. Showing by County Municipalities of Ontario the number of acres under the various crops in 1903 per 1,000 acres of cleared land; together with the average for the Province for the past ten years and the average of the twenty-two years 1882-1903.

Counties and Districts.	Fallwheat.	Springwheat.	Barley.	Oats.	Peas.	Beans.	Rye.	Buckwheat.	Corn.	Potatoes.	Carrots.	Mangel Wurzels.	Turnips.	Hay and Clover.	Total.
Algoma	3.2	26.3	30.9	180.0	41.0	.2	1.0	.5	3.7	16.5	1.7	1.3	11.4	292.0	609.5
Brant	132.9	2.6	81.0	149.8	10.9	2.2	29.2	7.3	61.3	11.5	.3	9.8	17.9	179.6	696.3
Bruce	57.1	3.2	31.0	195.6	72.8	.1	2.1	3.2	8.8	6.6	.1	8.1	14.7	201.9	607.8
Carleton	.7	33.7	28.6	257.0	12.5	1.9	3.3	9.3	28.9	13.2	.6	4.2	7.2	225.0	625.9
Dufferin	17.2	20.6	64.9	275.7	41.8	.2	26.7	6.8	2.3	9.7	.3	2.9	19.1	174.6	665.8
Dundas	2.9	7.4	22.5	222.1	3.7	.5	2.9	10.9	63.8	13.0	.9	1.7	.9	263.3	616.5
Durham	16.5	57.1	107.8	182.8	71.7	2.0	36.2	10.6	22.1	9.0	.6	8.3	18.5	149.6	695.8
Elgin	70.0	.2	35.9	140.4	5.8	15.8	15.7	6.8	100.7	7.9	.1	4.0	1.2	194.8	599.6
Essex	27.2	2.0	33.2	221.4	4.8	1.7	6.7	1.5	289.1	9.0	.3	2.6	.4	141.2	741.1
Frontenac	2.1	28.3	27.1	193.7	6.1	1.0	16.0	5.5	31.9	13.1	.9	2.1	1.5	304.2	633.5
Glengarry	.1	26.2	29.4	199.6	8.4	.5	1.1	2.9	34.6	10.3	.7	1.8	1.6	280.3	597.5
Grenville	.1	9.3	18.2	195.5	4.6	.5	8.1	22.5	61.7	16.4	.5	2.0	.8	239.1	582.6
Grey	36.7	8.2	40.3	221.4	64.9	.2	1.7	6.1	9.3	8.1	.5	6.3	16.7	207.5	628.2
Haldimand	108.0	2.2	24.8	143.3	55.2	1.5	28.0	4.1	28.3	5.4	.2	3.0	.5	251.9	656.4
Haliburton	1.7	28.7	12.2	160.3	35.5	.3	7.3	5.8	6.9	13.1	.7	1.1	4.3	302.3	580.2
Halton	132.9	7.1	60.0	149.0	25.7	.3	8.4	.8	31.6	8.1	.1	10.2	8.1	191.6	631.2
Hastings	16.8	22.3	51.5	154.6	18.5	1.4	25.4	11.2	37.3	12.1	.7	3.0	1.8	222.7	582.3
Huron	66.1	2.5	56.7	214.1	17.4	.5	4.5	2.1	20.2	6.1	.1	10.3	11.4	182.8	595.1
Kent	71.4	.2	46.6	149.9	4.8	74.6	3.4	1.1	171.3	6.6	.3	2.4	.5	159.6	692.7
Lambton	29.1	2.4	60.6	208.4	8.1	3.6	2.7	1.2	61.9	6.8	.5	5.3	.7	188.7	580.0
Lanark	4.8	37.8	17.2	155.3	23.2	.9	3.4	11.9	26.3	8.1	.3	2.2	3.8	202.9	498.1
Leeds	5.2	15.3	22.6	178.0	8.5	.8	5.6	13.1	52.7	11.0	.5	2.2	2.1	247.7	565.3
Lennox & Addington	6.3	14.2	64.3	155.3	7.8	.7	20.0	15.8	25.4	10.8	.3	1.8	1.5	288.2	612.4
Lincoln	94.6	2.8	9.2	130.4	30.0	.8	30.6	1.3	66.8	11.7	.9	4.3	1.3	257.8	642.5
Manitoulin	11.4	41.9	46.5	155.7	98.1	1.1	2.2	.5	5.4	11.8	1.5	1.3	9.0	392.0	778.4
Middlesex	57.6	.7	41.1	159.9	7.6	2.5	1.6	1.5	52.1	8.5	.1	5.8	3.5	170.7	513.5
Muskoka	.5	14.3	11.3	211.9	45.6	.3	2.2	2.5	7.3	18.4	1.3	1.3	10.6	388.3	715.8
Nipissing	2.1	37.6	25.3	203.2	60.2	.6	1.3	1.1	1.6	31.5	1.9	2.4	9.7	410.0	791.8
Norfolk	107.6	1.0	28.1	139.6	10.4	1.5	57.7	32.6	107.3	10.5	.9	4.3	5.0	177.7	687.2
Northumberland	32.0	45.3	55.1	155.8	46.6	2.4	42.8	21.7	29.0	13.2	1.0	5.4	13.0	177.3	640.6
Ontario	26.3	56.7	79.9	231.0	36.3	.4	28.1	8.6	26.8	9.7	.3	10.7	31.5	160.1	706.4
Oxford	83.9	1.1	55.2	239.1	9.1	.4	9.0	4.4	63.7	7.6	.2	9.8	16.5	175.7	676.0
Parry Sound	2.7	23.7	15.5	218.5	53.1	.5	2.9	1.1	4.6	17.0	1.2	1.1	13.9	360.5	716.3
Peel	62.0	21.9	123.4	193.5	27.2	.0	27.4	4.9	19.2	13.2	.9	7.0	7.6	166.2	674.1
Perth	94.7	3.6	66.0	234.9	21.1	.0	.4	.5	21.4	6.9	.3	12.6	12.2	182.5	657.1
Peterborough	31.9	33.9	40.3	192.0	89.6	.3	12.7	8.1	12.3	10.5	1.2	6.3	9.1	200.3	651.8
Prescott	.5	32.7	22.6	234.1	10.3	2.2	.6	8.0	30.2	15.3	.9	1.5	1.7	313.4	674.0
Prince Edward	28.9	26.6	87.9	147.1	11.1	3.6	57.9	28.2	67.9	10.7	1.3	2.9	1.0	195.7	640.8
Renfrew	1.3	90.6	10.8	166.5	68.2	.8	7.1	3.1	10.1	10.2	.4	2.3	3.0	243.3	617.7
Russell	.7	15.4	24.0	213.8	10.1	1.2	.7	11.6	28.6	9.5	1.1	3.3	7.1	273.4	600.8
Simcoe	102.7	19.3	86.1	182.8	67.6	.6	11.8	8.5	9.6	11.5	.9	7.0	15.3	157.7	681.4
Stormont	.7	14.8	21.2	191.6	3.1	.5	.5	16.6	18.6	12.2	.8	1.1	.8	274.3	589.8
Victoria	18.8	51.2	60.6	237.6	75.0	.6	11.0	8.2	11.0	9.7	.5	7.2	18.9	174.6	685.9
Waterloo	149.0	1.9	82.7	238.2	12.9	.0	11.4	1.0	25.9	11.5	.5	10.6	19.8	185.9	751.0
Welland	79.7	1.3	8.6	133.2	22.0	7.9	30.8	7.9	67.1	15.7	.3	2.3	.5	243.9	621.2
Wellington	32.8	11.7	82.3	278.0	37.9	.0	3.9	2.2	9.6	9.4	.5	9.2	30.9	194.9	703.3
Wentworth	118.2	4.7	55.9	156.6	19.7	.1	24.0	5.2	47.4	14.4	.7	10.0	9.9	198.1	665.2
York	72.3	46.6	112.6	214.9	14.8	.6	15.7	4.3	23.2	18.1	.5	11.1	17.3	183.0	735.0
The Province :															
1903	48.8	18.2	52.0	193.4	29.9	3.9	13.1	7.0	13.2	10.2	.6	5.9	9.9	204.0	640.1
1902	55.2	22.3	48.8	184.3	39.2	1.6	13.9	6.9	42.9	10.7	.6	5.6	10.1	195.0	639.5
1901	67.8	26.6	47.4	179.3	44.9	1.0	11.8	6.6	38.8	11.5	.7	4.5	10.9	190.3	645.1
1900	80.4	28.3	43.4	180.4	49.8	3.3	10.7	7.7	38.4	12.3	.8	4.1	11.8	190.0	661.1
1899	80.1	30.1	37.4	180.3	56.7	3.1	10.5	10.1	38.6	12.8	.9	4.0	11.7	191.1	667.7
1898	80.7	30.0	33.8	182.9	66.6	3.4	12.7	11.5	40.1	13.1	1.0	3.7	11.7	188.8	680.0
1897	73.9	25.2	35.1	189.3	69.8	3.9	14.6	11.8	42.3	13.2	.9	3.2	11.6	182.2	677.0
1896	69.2	20.2	36.5	191.4	65.5	5.4	11.7	11.5	39.2	14.1	.9	2.8	11.7	191.5	671.6
1895	59.8	18.0	38.5	191.0	64.4	5.8	9.7	10.9	36.4	14.9	1.0	2.8	12.2	204.2	669.6
1894	63.4	18.7	39.6	190.6	63.9	4.8	7.3	11.8	30.8	13.6	.9	2.3	12.0	209.6	669.3
1882-1903	74.5	36.8	52.1	168.6	57.8	3.3	10.2	8.3	28.9	13.1	.9	2.8	10.5	202.0	669.8

PASTURE—ORCHARD—VINEYARD—APPLES.

TABLE XVII. Showing by County Municipalities of Ontario the area in pasture (cleared land), orchard and garden, and vineyard, for the year 1903, together with the totals for the Province for the past ten years; also the number of apple trees and the yield.

Counties and districts	Pasture.	Orchard and garden.	Vineyards.	Apple Trees. 15 years old and over.			No. of trees under 15 years in orchards.
				No. of trees.	Bushels.	Bush. per tree.	
Algoma	7,745	792	1	3,241	10,533	3.25	17,235
Brant	28,682	6,368	82	109,216	774,341	7.09	41,697
Bruce	146,653	10,097	44	269,873	1,592,251	5.90	81,506
Carleton	92,218	3,678	4	58,445	282,289	4.83	66,843
Dufferin	47,630	3,189	11	65,707	362,703	5.52	39,396
Dundas	42,502	3,262	36	103,909	666,057	6.41	27,414
Durham	52,160	7,995	22	188,625	1,052,528	5.58	135,500
Elgin	86,197	10,828	192	203,542	877,266	4.31	92,929
Essex	36,580	13,075	1,891	189,279	1,118,639	5.91	75,511
Frontenac	80,355	4,681	16	87,231	625,446	7.17	50,250
Glengarry	53,909	2,447	7	43,574	353,821	8.12	31,792
Grenville	58,076	2,841	21	68,145	333,911	4.90	45,375
Grey	158,086	15,343	77	352,894	2,163,240	6.13	199,099
Haldimand	37,400	7,110	70	161,163	1,163,597	7.22	36,706
Haliburton	10,929	625	6	5,190	25,950	5.00	8,525
Halton	30,287	10,276	505	208,620	1,347,685	6.46	59,417
Hastings	97,377	10,360	42	173,185	910,953	5.26	191,541
Huron	175,293	14,959	76	373,613	2,308,928	6.18	119,767
Kent	63,625	17,600	371	343,141	1,907,864	5.56	136,481
Lambton	102,177	12,507	254	248,200	1,511,538	6.09	118,315
Lanark	119,224	2,938	101	52,026	199,260	3.83	42,296
Leeds	96,633	4,465	6	93,716	545,427	5.82	54,591
Lennox & Addington	80,191	7,532		97,962	779,778	7.96	114,626
Lincoln	21,091	17,549	4,409	244,658	1,971,943	8.06	19,128
Manitoulin	7,048	637	8	3,273	12,568	3.84	16,169
Middlesex	205,899	15,780	143	291,408	1,532,806	5.26	118,114
Muskoka	13,633	950	6	3,347	11,079	3.31	16,422
Nipissing	5,845	398	23	894	5,364	6.00	3,981
Norfolk	39,998	11,112	84	205,215	1,046,597	5.10	34,612
Northumberland	71,824	15,897	213	366,381	2,465,744	6.73	288,669
Ontario	57,555	9,235	47	217,609	1,527,615	7.02	126,703
Oxford	87,622	10,976	68	201,557	1,128,719	5.60	50,094
Parry Sound	13,745	610	1	1,681	6,724	4.00	5,934
Peel	48,244	8,316	312	164,789	912,931	5.54	54,589
Perth	98,841	7,749	53	158,194	863,739	5.46	45,099
Peterborough	62,888	3,756	19	65,519	437,012	6.67	51,902
Prescott	40,509	1,855	7	39,197	207,744	5.30	36,454
Prince Edward	41,573	10,879	30	228,575	1,632,026	7.14	184,893
Renfrew	83,487	2,470	14	24,664	86,324	3.50	40,368
Russell	34,107	727	5	6,336	47,520	7.50	13,702
Simcoe	94,773	12,424	129	250,830	1,382,073	5.51	218,053
Stormont	45,214	2,780	29	57,913	307,518	5.31	30,408
Victoria	51,204	3,985	28	69,128	423,755	6.13	45,723
Waterloo	29,314	5,986	8	122,937	698,282	5.68	47,336
Welland	28,763	9,381	2,122	199,021	1,319,509	6.63	20,598
Wellington	86,189	8,018	75	168,719	1,160,787	6.88	57,011
Wentworth	31,979	19,414	3,436	248,519	1,784,366	7.18	41,831
York	52,299	11,999	165	254,693	1,772,663	6.96	106,468
The Province:							
1903	3,057,576	365,851	15,269	7,095,554	43,659,413	6.15	3,456,063
1902	2,879,972	356,251	14,028	7,024,890	47,648,743	6.78	3,446,904
1901	2,777,983	346,915	12,227	6,777,935	14,430,650	2.13	3,392,701
1900	2,694,600	339,411	10,687	6,518,048	36,993,017	5.68	3,430,670
1899	2,710,268	338,073	10,802	6,324,812	19,126,439	3.02	3,445,135
1898	2,708,043	335,420	10,118	6,221,324	†		3,458,820
1897	2,658,245	326,341	11,100	6,102,399	13,343,720	2.19	3,435,018
1896	2,669,744	*320,122	.....	5,913,906	55,895,755	9.45	3,548,058
1895	2,728,655	*312,787	.....	5,835,915	†	.....	3,362,401
1891	2,703,241	.....	.....	.....	.....	.....	.....

*Including vineyard.

† No estimate made.

HORSES.

TABLE XVIII. Showing by County Municipalities of Ontario the number and value of horses on hand on July 1, 1903, together with the totals for the Province for the past ten years; also the number and value of horses sold during the year ending June 30.

Counties and districts.	On hand July 1.					Sold in year.		
	Working horses.	Breeding mares.	Other horses.	Total.		No.	Value.	Value per head.
				No.	Value.			
					$		$	$
Algoma	1,777	349	424	2,550	277,271	218	20,710	95
Brant	5,824	1,160	1,924	8,908	796,818	800	80,800	101
Bruce	12,856	3,967	5,913	22,736	2,272,631	2,881	314,029	109
Carleton	8,694	2,436	3,859	14,989	1,506,232	1,094	125,810	115
Dufferin	6,373	1,878	2,974	11,225	1,096,785	1,160	114,840	99
Dundas	5,133	1,098	2,065	8,296	721,796	692	67,124	97
Durham	8,794	2,025	3,354	14,173	1,438,058	1,423	156,530	110
Elgin	9,903	2,308	3,646	15,857	1,533,374	2,010	211,050	105
Essex	11,720	2,306	4,402	18,428	1,687,932	1,425	137,375	95
Frontenac	6,865	1,367	2,057	10,289	881,943	875	84,875	97
Glengarry	5,704	1,956	2,216	9 876	818,994	807	73,437	91
Grenville	4,679	878	1,398	6,955	564,201	466	41,940	90
Grey	17,359	4,375	7,102	28,836	2,723,408	3,464	336,008	97
Haldimand	6,452	1,528	2,301	10,281	915,620	1,142	105,064	92
Haliburton	1,089	342	389	1,820	162,082	152	12,616	83
Halton	5,528	1,035	1,443	8,006	799,139	552	58,512	106
Hastings	11,182	2,039	3,195	16.416	1,487,088	1,125	96,750	86
Huron	15,566	5,024	7,045	27,635	2,939,677	3,933	471,960	120
Kent	14,734	3,580	6,261	24,575	2,435,858	1,982	204,146	103
Lambton	11,387	3,685	5,155	20,227	1,990,744	2,271	213,474	94
Lanark	6,856	1,522	2,571	10,949	1,038,473	1,461	147,561	101
Leeds	7,387	1,516	2,307	11.210	931,313	664	57,104	86
Lennox and Addington	7,783	1,777	2,794	12,354	1,059,705	708	65,844	93
Lincoln	6,101	1,012	1,431	8,544	806,124	571	54,245	95
Manitoulin	1,145	452	699	2,296	216,821	203	18,879	93
Middlesex	15,766	4,653	7,253	27,672	2,708,040	3,632	410,416	113
Muskoka	2,158	517	735	3,410	330,862	218	19,620	90
Nipissing	1,170	254	429	1,853	191,762	135	13,500	100
Norfolk	8,473	1,861	3,091	13,425	1,148,687	1,417	128,947	91
Northumberland	10,074	1,994	3,402	15,470	1,436,938	1,559	149,664	96
Ontario	10,872	3,384	4,299	18,555	1,972,350	1,949	216,339	111
Oxford	12,237	2,736	3,699	18,672	1,838,152	1,880	208,680	111
Parry Sound	2,024	434	477	2,935	297,827	254	23,114	91
Peel	7,879	2,110	2,704	12,693	1,350,341	1,125	121,500	108
Perth	12,575	3,930	5,391	21,896	2,325,006	2,725	305,200	112
Peterborough	7,135	1,384	2,612	11,131	1,015,628	752	65,424	87
Prescott	4,647	1,469	1,963	8,079	711,834	507	47,658	94
Prince Edward	6,014	1,255	2,460	9,729	850,271	693	67,221	97
Renfrew	7,871	1,795	2,876	12,542	1,241,905	937	102,133	109
Russell	2,613	957	1,256	4,826	485,124	388	34,920	90
Simcoe	18,107	5,034	7,430	30,571	3,169,428	2,937	320,133	109
Stormont	4,297	993	1,498	6,788	560,626	422	37,980	90
Victoria	7,423	2,416	3,325	13,194	1,310,702	1,192	123,968	104
Waterloo	8,457	1,777	2,717	12,951	1,244,178	1,316	142,128	108
Welland	6,212	1,167	2,122	9,501	807,362	745	71,520	96
Wellington	13,265	3,934	5,099	22,298	2,161,062	2,280	243,960	107
Wentworth	7,968	1,540	2,659	12,167	1,185,108	879	92,295	105
York	11,491	3,246	4,055	21,792	2,303,176	1,946	233,520	120
The Province:								
1903	392,619	98,485	148,477	639,581	61,811,456	61,967	6,448,523	104
1902	393,307	93,425	139,374	626,106	55,173,637	54,538	5,079,127	93
1901	398 358	90,148	131,837	620,343	50,038,465	50,755	4,347,582	86
1900	405,883	90,136	121,290	617,309	46,916,999	47,926	3,774,480	79
1899	418,490	86,614	110,420	615,524	42,713,557	45,367	3,204,006	71
1898	439,504	77,886	102,851	611,241	38,659,896	44,404	2,884,107	65
1897	436,921	69,940	106,809	613,670	36,111,805	43,511	2,709,479	62
1896	434,384	66,883	123,482	614,749	37,185,693	44,458	2,712,888	61
1895	423,673	72,156	151,867	647,696	40,283,754	40,346	2,616,391	65
1894	395,686	88,962	190,129	674,777	46,245,614	41,916	3,222,500	77

CATTLE.

TABLE XIX. Showing by County Municipalities of Ontario the number and value of cattle on hand on July 1, 1903, together with the totals for the Province for the past ten years; and also the number and value of cattle sold or slaughtered during the year ending June 30.

Counties and districts.	On hand July 1.					Sold or slaughtered in year.		
	Milch Cows.	Store cattle over 2 years.	Young and other cattle.	Total.		No.	Value.	Value per head.
				No.	Value.			
					$		$	$ c.
Algoma	4,522	1,936	6,708	13,166	297,489	2,686	78,968	29 40
Brant	12,137	3,879	15,540	31,556	795,149	8,595	255,529	29 73
Bruce	29,786	28,078	50,707	108,571	2,976,053	34,143	1,393,634	40 80
Carleton	35,903	9,659	28,747	74,309	1,830,666	18,775	627,273	33 41
Dufferin	13,231	11,773	19,475	44,479	1,131,141	12,652	447,501	35 37
Dundas	28,335	2,435	11,484	42,254	1,096,488	4,950	127,661	25 79
Durham	15,682	9,033	20,668	45,383	1,117,167	12,447	446,349	35 86
Elgin	24,287	16,654	30,636	71,577	2,110,294	26,503	1,016,125	38 34
Essex	18,673	7,757	23,140	49 570	1,178,617	14,708	385,497	26 21
Frontenac	29,376	7,209	18,899	55,484	1,307,109	9,538	238,832	25 04
Glengarry	29,878	5,162	15,564	50,604	1,164,255	6,819	176,339	25 86
Grenville	22,658	3,886	10,093	36,637	876,495	5,097	144,806	28 41
Grey	38,568	27,885	64,835	131,288	3,297,737	40,035	1,526,134	38 12
Haldimand	13,822	4,516	17,367	35,705	909,849	9,713	302,074	31 10
Haliburton	4,036	1,081	6,072	11,189	187,057	2,816	48,717	17 30
Halton	11,083	6,597	12,275	29,955	875,040	8,928	373,905	41 88
Hastings	46,812	8,935	31,908	87,655	1,820,479	16,227	352,613	21 73
Huron	32,050	37,784	59,367	129,201	3,805,860	40,614	1,729,750	42 59
Kent	22,635	19.431	35,540	77,606	2,294,448	21,302	845,050	39 67
Lambton	22,924	23,322	38,297	84,543	2,403,987	28,439	1,135,569	39 93
Lanark	26,835	13,005	26,036	65,876	1,486,228	16,731	528,030	31 56
Leeds	38,327	5,488	18,852	62,667	1,542,350	8,844	228,352	25 82
Lennox and Addington	26,834	6,222	20,296	53,352	1,199,491	13,528	350,916	25 94
Lincoln	8,932	2,010	8,260	19,202	524,097	5,331	173,364	32 52
Manitoulin	3,996	2,446	6,795	13,237	288,739	2,734	78,028	28 54
Middlesex	41,134	35,459	57,590	134,183	4,155,071	47,227	1,917,416	40 60
Muskoka	6,139	2,978	8,983	18,100	363,393	4,255	105,524	24 80
Nipissing	2,767	1,057	3,880	7,704	150,524	1,827	44,360	24 28
Norfolk	19,285	4,180	19,056	42,521	990,930	11,147	266,748	23 93
Northumberland	26,861	6,836	23,725	57,422	1,305,497	12,166	337,485	27 74
Ontario	28,319	11,987	34,850	70,156	1,990,323	19,972	822,247	41 17
Oxford	42,036	12,652	36,216	90,904	2,640,988	24,663	947,059	38 40
Parry Sound	5,834	3,219	9,250	18,303	359,061	4,092	97,185	23 75
Peel	15,922	11,014	16,848	43,784	1,299,828	12,009	491,408	40 92
Perth	33,740	20,111	42,888	96,739	2,760,359	28,654	1,216,076	42 44
Peterborough	21,921	7,871	23,197	52,989	1,106,481	11,585	289,857	25 02
Prescott	23,276	2,907	14,545	40,728	919,149	6,260	148,425	23 71
Prince Edward	15,485	2,512	10,442	28,439	675,263	5,289	128,681	24 33
Renfrew	27,847	11,938	29,252	69,037	1,361,159	14,470	358,277	24 76
Russell	13,423	2,098	9,211	24,732	573,671	3,347	66,840	19 97
Simcoe	33,683	19.743	49,163	102,589	2,577,429	26,677	917,689	34 40
Stormont	24,790	2,206	10,952	37,948	915,686	5,343	131,491	24 61
Victoria	18,669	12.915	29,251	60,835	1,393,968	14.818	514,777	34 74
Waterloo	14,778	7,455	19,367	41,600	1,176,753	18,831	843,664	44 77
Welland	10,111	3,069	11,434	24,614	615,670	6,572	198,934	30 27
Wellington	26,814	21,475	45,338	93,627	2,737,137	36,951	1,800,253	48 72
Wentworth	15,081	4,255	15,093	34,429	979,055	8,991	293,826	32 68
York	25,871	10,156	21,785	57,812	1,725,944	22,610	919,775	40 68
The Province.								
1903	1,050,108	484,276	1,139,877	2,674,261	69,289,924	719,911	25,867,813	35 93
1902	1,010,746	458,834	1,093,004	2,562,584	63,517,342	673,544	23,340,908	34 65
1901	984,012	445,868	1,077,740	2,507,620	59,527,119	610,880	20,286,963	33 21
1900	976,124	392,665	1,060,541	2,429,330	56,320,810	560,893	18,017,989	32 12
1899	974,474	356,505	987,376	2,318,355	52,938,500	555,583	17,303,426	31 14
1898	965,021	345,695	905,227	2,215,943	47,286,254	552,485	16,121,659	29 18
1897	940,236	365,406	876,684	2,182,326	42,683,557	503,007	13,350,223	26 54
1896	920,346	370,409	891,203	2,181,958	44,383,633	436,451	12,381,248	28 57
1895	888,228	365,644	896,231	2,150,103	46,708,017	414,131	13,272,127	31 74
1894	834,237	376,809	888,255	2,099,301	47,577,587	441,698	15,219,256	34 46

SHEEP.

TABLE XX. Showing by County Municipalities of Ontario the number and value of sheep on hand July 1, 1903, together with the totals for the Province for the past ten years; also the number and value of sheep sold or slaughtered during the year ending June 30.

Counties and districts.	On hand July 1.				Sold or slaughtered in year		
	Over 1 year.	Under 1 year.	Total. No.	Total. Value	No.	Value	Value per head.
				$		$	$ c.
Algoma	7,652	6,367	14,019	55,220	5,006	21,025	4 20
Brant	12,194	10,245	22,439	134,552	7,528	37,038	4 92
Bruce	52,051	52,600	104,651	485,475	11,130	205,008	4 57
Carleton	13,738	11,783	25,581	114,624	11,253	41,186	3 66
Dufferin	23,127	22,052	45,179	197,523	18,720	82,555	4 41
Dundas	3,909	3,894	7,803	31,970	1,800	15,700	8 72
Durham	19,432	17,543	37,075	166,602	14,143	59,966	4 24
Elgin	20,782	20,764	41,316	179,687	18,911	82,074	4 34
Essex	8,781	6,695	15,476	56,993	8,258	29,894	3 62
Frontenac	11,222	13,745	27,967	107,059	12,601	54,058	4 29
Glengarry	7,133	5,569	12,702	48,964	5,224	25,612	4 90
Grenville	5,426	4,978	10,404	38,155	6,374	19,759	3 10
Grey	69,289	67,841	137,130	593,185	63,142	252,109	3 98
Haldimand	10,531	10,455	20,986	101,335	9,883	43,485	4 40
Haliburton	6,894	5,434	12,298	48,329	3,929	12,730	3 24
Halton	10,869	9,644	20,513	117,743	10,959	59,727	5 45
Hastings	26,887	21,736	48,623	175,812	18,161	72,462	3 99
Huron	37,906	37,996	75,902	365,368	38,037	165,461	4 35
Kent	18,156	15,749	34,244	152,134	18,813	85,975	4 57
Lambton	19,680	19,617	39,297	174,942	18,664	86,096	4 66
Lanark	28,613	25,361	53,974	200,043	23,163	79,247	3 42
Leeds	7,074	7,298	14,372	52,857	7,117	27,827	3 91
Lennox and Addington	12,610	12,435	25,045	97,525	13,233	49,765	3 68
Lincoln	5,598	5,174	10,772	53,543	5,837	26,150	4 48
Manitoulin	13,920	11,636	25,556	95,529	7,656	24,346	3 18
Middlesex	24,004	22,030	46,034	258,361	18,573	99,737	5 37
Muskoka	13,351	11,890	25,241	101,509	9,263	33,162	3 58
Nipissing	2,064	1,415	3,479	13,519	903	3,865	4 28
Norfolk	13,987	13,740	27,727	115,852	12,205	54,325	4 45
Northumberland	12,894	11,839	24,733	100,782	10,413	39,153	3 76
Ontario	29,223	23,408	52,631	263,520	21,402	112,361	5 25
Oxford	8,448	8,442	16,890	80,151	10,766	50,923	4 73
Parry Sound	14,749	12,680	27,429	101,618	10,584	35,456	3 35
Peel	10,685	8,928	19,611	93,673	6,504	30,048	4 62
Perth	17,214	17,241	34,455	160,192	16,756	74,229	4 43
Peterborough	17,886	15,726	33,612	131,150	13,050	47,809	3 66
Prescott	8,075	7,168	15,243	56,630	5,851	20,461	3 49
Prince Edward	3,688	3,485	7,183	27,029	3,940	13,632	3 46
Renfrew	37,516	32,768	70,284	232,825	24,696	75,570	3 06
Russell	7,153	4,963	12,116	49,653	3,755	14,156	3 77
Simcoe	58,697	48,507	107,204	464,453	47,882	189,131	3 95
Stormont	3,715	3,310	7,025	31,669	4,540	18,796	4 14
Victoria	29,933	25,103	55,036	215,241	21,795	81,731	3 75
Waterloo	11,514	9,619	21,133	111,495	10,323	52,647	5 10
Welland	9,400	8,507	17,907	78,198	10,115	40,865	4 04
Wellington	41,376	40,369	81,745	419,379	39,158	180,910	4 62
Wentworth	8,875	8,704	17,579	91,080	8,264	44,349	4 82
York	19,140	15,766	35,206	180,350	20,129	105,073	5 22
The Province:							
1903	860,718	781,909	1,642,627	7,228,198	727,860	3,074,393	4 22
1902	915,217	800,296	1,715,513	7,634,284	732,994	3,110,882	4 24
1901	947,644	814,185	1,761,799	7,772,793	729,148	3,103,513	4 26
1900	949,597	847,616	1,797,213	7,711,496	676,058	2,872,069	4 19
1899	930,314	842,290	1,772,604	7,315,729	665,238	2,629,200	3 95
1898	877,872	799,142	1,677,014	6,499,695	661,239	2,400,579	3 70
1897	897,685	792,265	1,689,950	6,003,194	702,872	2,508,171	3 49
1896	995,616	853,732	1,849,348	6,387,202	766,806	2,646,709	3 45
1895	1,095,995	926,740	2,022,735	7,708,442	632,315	2,481,612	3 64
1894	1,086,635	929,170	2,015,805	8,606,671	616,146	2,452,267	4 14

SWINE.

TABLE XXI. Showing by County Municipalities of Ontario the number and value of swine on hand July 1, 1903, together with the totals for the Province for the past ten years; also the number and value of swine sold or slaughtered during the year ending June 30.

Counties and districts.	On hand July 1.				Sold or slaughtered in year.		
	Over 1 year.	Under 1 year.	Total. No.	Total. Value.	No.	Value.	Value per head.
				$		$	$ c.
Algoma	1,071	4,144	5,215	31,872	5,432	55,515	10 22
Brant	4,473	33,069	37,542	251,685	36,651	360,279	9 83
Bruce	7,841	57,929	65,770	425,755	81,455	843,059	10 35
Carleton	5,550	27,641	33,191	221,166	33,359	346,600	10 39
Dufferin	3,891	26,509	30,400	197,534	36,088	381,089	10 56
Dundas	3,861	21,723	25,584	174,552	29,409	281,738	9 58
Durham	4,732	31,365	36,097	241,676	43,264	463,357	10 71
Elgin	8,980	69,098	78,078	506,801	85,410	858,371	10 05
Essex	20,327	105,577	125,904	804,908	104,309	1,112,977	10 67
Frontenac	3,354	18,473	21,827	142,223	21,964	222,495	10 13
Glengarry	3,557	17,339	20,896	130,585	19,631	207,500	10 57
Grenville	2,960	18,132	21,092	143,793	21,696	204,810	9 44
Grey	9,739	63,145	72,884	489,632	94,885	974,469	10 27
Haldimand	3,234	25,550	28,784	189,048	31,824	323,014	10 15
Haliburton	721	2,647	3,368	19,789	2,657	26,039	9 80
Halton	2,994	19,983	22,977	153,328	29,519	297,256	10 07
Hastings	9,135	38,262	47,397	347,060	48,764	494,467	10 14
Huron	8,796	66,903	75,699	514,271	95,181	1,013,678	10 65
Kent	14,581	108,788	123,369	795,069	120,494	1,232,654	10 23
Lambton	7,272	57,375	64,647	412,786	69,005	720,412	10 44
Lanark	4,235	21,033	25,268	143,860	25,086	246,595	9 83
Leeds	5,734	31,630	37,364	234,793	31,912	329,332	10 32
Lennox and Addington	4,067	20,317	24,384	153,651	28,289	287,982	10 18
Lincoln	2,539	19,590	22,129	149,700	25,019	264,201	10 56
Manitoulin	1,046	4,468	5,514	31,179	5,620	50.243	8 94
Middlesex	8,738	67,570	76,308	494,965	88,195	941,923	10 68
Muskoka	1,067	4,512	5,579	34,378	6,423	49,457	7 70
Nipissing	985	2,301	3,286	22,322	2,280	32,216	14 13
Norfolk	6,690	46,871	53,561	343,465	55,999	563,910	10 07
Northumberland	5,642	33,387	39,029	252,607	47,740	498,883	10 45
Ontario	7,564	53,001	60,565	383,155	70,139	774.335	11 04
Oxford	8,709	68,820	77,529	535,926	86,309	924,369	10 71
Parry Sound	1,142	4,458	5,600	37,691	6,131	56,712	9 25
Peel	4,236	29,846	34,082	243,050	41,675	397,996	9 55
Perth	8,907	64,371	73,278	526,545	85,297	901,589	10 57
Peterborough	3,819	25,710	29,529	166,691	33,039	319,157	9 66
Prescott	4,205	11,041	15,246	106,593	13,593	170,048	12 51
Prince Edward	2,379	16,018	18,397	118,915	20,345	204,264	10 04
Renfrew	7,409	20,972	28,381	193,720	20,870	224,561	10 76
Russell	2,236	6,822	9,058	61,379	7,720	80,056	10 37
Simcoe	13,280	85,449	98,729	606,607	109,210	1,179,468	10 80
Stormont	2,545	15,339	17,884	119,054	19,086	187.997	9 85
Victoria	5,072	32,216	37,288	243,679	36,794	394,064	10 71
Waterloo	5,692	44,632	50,324	356,448	57,916	626,072	10 81
Welland	2,678	18,044	20,722	137,032	26,450	262,913	9 94
Wellington	8,745	68,776	77,521	533,182	92,112	976,387	10 60
Wentworth	3,648	28,405	32,053	220,903	37,543	381,061	10 15
York	7,718	50,339	58,057	378,720	76,809	787,292	10 25
The Province:							
1903	267,796	1,709,590	1,977,386	13,023,743	2,168,598	22,532,862	10 39
1902	238,992	1,445,643	1,684,635	11,262,265	1,991,907	20,154,190	10 12
1901	222,916	1,268,969	1,491,885	9,298,712	1,973,405	17,548,490	8 89
1900	265,457	1,506,184	1,771,641	9,598,153	2,056,049	15,800,799	7 69
1899	295,349	1,675,721	1,971,070	10,180,338	1,875,466	14,157,394	7 55
1898	265,048	1,375,739	1,640,787	8,720,242	1,592,697	11,852,535	7 44
1897	235,479	1,049,484	1,284,963	6,533,210	1,399,967	10,080,812	7 20
1896	243,756	1,025,875	1,269,631	6,505,227	1,304,359	10,022,525	7 68
1895	244,185	1,054,887	1,299,072	7,101,211	1,159,992	10,067,667	8 68
1894	227,878	914,255	1,142,333	6,909,262	1,030,567	10,158,978	9 86

POULTRY.

TABLE XXII. Showing by County Municipalities of Ontario the number and value of Poultry on hand July 1, 1903, together with the totals for the Province for the past ten years; also, the number and value of Poultry sold or killed during the year ending June 30.

Counties and districts.	On hand July 1.						Sold or killed in year.	
	Turkeys.	Geese.	Ducks.	Other fowls.	Totals No.	Totals Value.	No.	Value.
						$		$
Algoma	2,437	1,282	879	32,485	37,083	12,701	15,820	5,695
Brant	3,617	2,611	2,580	119,382	128,190	38,974	58,713	22,898
Bruce	16,571	16,111	15,610	260,241	308,533	90,857	91,942	36,777
Carleton	17,674	9,829	7,326	177,020	211,849	75,361	79,130	33,235
Dufferin	10,172	9,912	5,776	112,167	138,027	44,907	53,014	20,675
Dundas	12,422	4,461	2,505	132,425	151,813	45,642	46,734	17,759
Durham	12,434	8,862	4,311	180,868	206,475	59,812	71,670	27,235
Elgin	29,528	5,687	9,528	254,433	299,176	91,786	132,194	48,912
Essex	22,327	8,348	12,437	280,205	323,317	88,461	145,971	49,630
Frontenac	16,104	5,088	5,546	102,768	129,506	50,614	73,280	29,312
Glengarry	5,422	3,344	3,649	117,076	129,491	37,284	59,970	20,390
Grenville	9,046	4,245	2,256	106,046	121,593	37,247	47,481	17,568
Grey	22,354	18,497	21,195	339,531	401,577	117,390	134,166	49,641
Haldimand	10,270	4,749	5,058	123,554	143,631	43,675	79,049	26,877
Haliburton	1,674	830	521	19,055	22,080	6,272	7,415	2,299
Halton	5,810	4,339	5,931	118,923	135,003	45,925	63,205	29,074
Hastings	12,918	7,208	7,885	208,507	236,518	72,352	98,816	31,621
Huron	32,436	14,023	21,332	395,649	463,440	127,616	137,489	52,246
Kent	26,737	6,953	14,415	374,289	422,394	125,430	127,952	44,783
Lambton	33,434	9,203	17,999	314,382	375,018	109,894	136,330	51,805
Lanark	12,780	5,857	3,951	141,659	164,247	49,353	54,245	21,698
Leeds	13,106	4,012	3,446	122,000	142,564	42,255	53,488	21,395
Lennox and Addington	10,082	4,566	6,490	145,458	166,596	51,218	68,573	26,743
Lincoln	6,237	1,772	5,315	106,392	119,716	37,644	62,713	25,085
Manitoulin	1,252	1,096	1,560	23,354	27,262	7,974	8,776	3,247
Middlesex	55,433	12,661	15,703	430,485	514,282	163,411	192,191	84,564
Muskoka	3,773	1,016	2,249	46,343	53,381	17,419	22,349	9,163
Nipissing	1,004	434	450	22,008	23,896	7,789	9,378	3,939
Norfolk	17,109	5,064	6,676	208,607	237,456	66,351	95,564	35,359
Northumberland	16,058	4,418	7,768	200,607	228,851	67,416	77,973	31,189
Ontario	13,050	10,892	9,832	265,692	299,466	95,608	110,577	44,231
Oxford	17,173	5,587	9,655	245,676	278,091	89,069	102,216	37,820
Parry Sound	2,888	1,591	799	40,835	46,113	14,791	15,992	6,117
Peel	14,038	8,224	11,881	161,726	195,869	70,690	97,109	42,728
Perth	16,789	12,000	19,044	291,260	339,093	94,324	93,632	36,516
Peterborough	20,070	10,754	8,283	147,608	186,715	59,809	64,343	27,667
Prescott	5,918	4,125	2,704	96,365	109,112	34,238	51,245	17,936
Prince Edward	6,779	2,308	3,614	123,397	136,098	39,000	45,418	16,805
Renfrew	11,696	8,520	4,011	141,200	165,427	52,976	56,493	19,208
Russell	4,368	2,460	2,826	53,635	63,289	21,762	31,395	12,558
Simcoe	22,849	17,101	14,448	381,831	436,229	132,271	152,674	56,489
Stormont	5,763	3,529	1,004	94,213	104,509	30,412	42,575	13,198
Victoria	14,360	8,004	10,135	168,881	201,380	63,695	59,605	23,482
Waterloo	2,911	3,175	4,845	145,187	156,118	43,480	51,943	18,180
Welland	7,178	2,711	7,680	133,580	151,149	48,758	83,458	27,541
Wellington	18,784	17,723	12,468	263,095	312,070	100,634	102,380	39,928
Wentworth	5,908	3,081	4,735	149,826	163,550	51,353	69,882	27,953
York	16,313	9,647	10,491	239,879	276,330	97,806	147,923	59,169
The Province :								
1903	647,056	317,910	358,802	8,359,805	9,683,573	2,973,646	3,684,451	1,407,340
1902	732,359	332,781	397,333	8,300,335	9,762,808	2,957,286	3,674,198	1,398,289
1901	825,823	360,278	435,094	8,124,041	9,745,236	2,859,172	3,495,999	1,306,555
1900	890,933	398,890	457,072	7,794,346	9,541,241	2,727,363	3,164,287	1,176,740
1899	927,456	421,830	458,497	7,536,241	9,344,024	2,658,321	3,102,614	1,162,991
1898	1,024,285	454,335	7,605,653		9,084,273	2,578,136	3,072,767	1,131,923
1897	890,228	409,715	7,135,398		8,435,341	2,318,038	2,965,221	1,083,914
1896	715,770	391,547	6,626,850		7,734,167	2,130,807	2,711,771	985,629
1895	696,604	420,022	6,636,214		7,752,840	2,156,623	2,392,458	860,384
1894	689,205	438,208	6,425,249		7,552,662	2,208,518	2,131,222	782,583

WOOL.—BEES.

TABLE XXIII. Showing by County Municipalities of Ontario the number, weight and value of fleeces of the wool clip in 1903, together with the totals for the Province for the past ten years; also the number of colonies of bees and the value of apiaries.

Counties and districts.	Clip of wool.				Colonies of bees.		
	No.	Pounds.	Lbs. per fleece.	Value.	No.	Value (including outfit).	Value per hive.
				$		$	$ c.
Algoma	7,455	46,431	6.23	4,643	348	2,088	6 00
Brant	12,328	89,070	7.23	8,907	4,123	24,903	6 04
Bruce	51,743	319,886	6.18	31,989	5,474	32,516	5 94
Carleton	13,567	75,901	5.59	7,590	6,235	33,357	5 35
Dufferin	23,279	142,486	6.12	14,249	2,513	13,269	5 28
Dundas	4,239	25,311	5.97	2,531	3,955	21,476	5 43
Durham	20,483	153,671	7.50	15,367	3,768	20,008	5 31
Elgin	21,144	139,374	6.59	13,937	6,307	38,031	6 03
Essex	8,726	54,911	6.29	5,491	7,813	50,081	6 41
Frontenac	14,002	78,736	5.62	7,874	6,457	35,836	5 55
Glengarry	7,279	46,382	6.37	4,638	5,976	27,669	4 63
Grenville	5,843	31,258	5.35	3,126	5,494	27,195	4 95
Grey	69,913	427,132	6.11	42,713	8,962	58,522	6 53
Haldimand	10,319	68,749	6.66	6,875	5,736	33,441	5 83
Haliburton	6,806	35,421	5.20	3,542	641	4,115	6 42
Halton	10,308	76,564	7.43	7,656	1,131	7,306	6 46
Hastings	26,000	134,965	5.19	13,496	4,866	28,807	5 92
Huron	37,592	228,702	6.08	22,870	9,028	50,015	5 54
Kent	18,350	137,690	7.50	13,769	6,656	35,077	5 27
Lambton	19,809	131,469	6.64	13,147	7,332	41,939	5 72
Lanark	28,010	147,916	5.28	14,792	7,959	37,566	4 72
Leeds	7,192	37,340	5.19	3,734	6,097	32,741	5 37
Lennox & Addington	13,074	74,445	5.69	7,444	2,652	13,684	5 16
Lincoln	5,525	32,658	5.91	3,266	1,675	10,452	6 24
Manitoulin	13,388	79,099	5.91	7,910	989	5,360	5 42
Middlesex	24,956	177,067	7.10	17,707	12,393	66,978	5 39
Muskoka	13,053	65,227	5.00	6,523	388	2,320	5 98
Nipissing	2,070	10,123	4.89	1,012	82	492	6 00
Norfolk	14,176	82,989	5.85	8,299	4,594	28,850	6 28
Northumberland	13,362	87,199	6.53	8,720	5,682	28,524	5 02
Ontario	30,588	222,434	7.27	22,243	3,600	24,192	6 72
Oxford	8,205	56,121	6.84	5,612	3,215	18,583	5 78
Parry Sound	14,871	87,010	5.85	8,701	442	2,776	6 28
Peel	10,596	80,266	7.58	8,027	2,462	15,437	6 27
Perth	16,985	106,442	6.27	10,644	4,200	25,032	5 96
Peterborough	18,443	105,385	5.71	10,539	1,335	6,622	4 96
Prescott	8,019	47,433	5.92	4,743	6,354	41,492	6 53
Prince Edward	3,416	20,545	6.01	2,055	1,871	10,309	5 51
Renfrew	37,790	181,884	4.81	18,188	5,523	30,156	5 46
Russell	7,246	47,381	6.53	4,733	2,375	10,973	4 62
Simcoe	57,942	399,380	6.89	39,938	3,707	20,537	5 54
Stormont	3,991	24,259	6.08	2,426	5,045	23,005	4 56
Victoria	29,653	172,672	5.82	17,267	5,861	37,628	6 42
Waterloo	11,691	75,200	6.43	7,520	1,593	10,131	6 36
Welland	9,730	55,207	5.67	5,521	3,976	24,174	6 08
Wellington	43,477	296,616	6.82	29,662	2,275	14,287	6 28
Wentworth	8,990	65,959	7.34	6,596	3,805	24,276	6 38
York	19,878	137,579	6.92	13,758	4,971	27,937	5 62
The Province:							
1903	865,503	5,419,900	6.26	541,990	207,936	1,180,165	5 68
1902	916,092	5,690,673	6.21	728,406	202,529	1,150,523	5 68
1901	960,229	5,834,097	6.14	781,769	202,247	1,114,099	5 51
1900	957,307	5,805,921	6.06	894,112	216,734	1,139,559	5 26
1899	928,184	5,525,122	5.95	790,092	203,343	1,053,454	5 18
1898	865,179	5,104,686	5.90	847,378	190,080	998,049	5 25
1897	887,003	6,139,984	5.79	945,757	166,811	885,196	5 31
1896	991,371	5,581,387	5.63	1,026,975	160,076	851,408	5 34
1895	1,109,140	6,214,811	5.60	1,242,962	173,173	938,658	5 42
1894	1,092,467	6,235,036	5.71	1,053,721	200,094	1,051,574	5 26

FARM PROPERTY, IMPLEMENTS AND LIVE STOCK.

TABLE XXIV. Showing by County Municipalities of Ontario the value of farm lands, buildings, implements and live stock for the year 1903, together with the totals for the Province for the past ten years; also the aggregate value of live stock sold or slaughtered as determined from Tables xviii-xxii.

Counties and Districts	Land.	Buildings.	Implements.	Live Stock.	Total	Value of Live stock sold or killed.
	$	$	$	$	$	$
Algoma	3,534,595	878,295	313,857	674,553	5,401,300	181,913
Brant	8,816,420	4,303,044	894,289	2,017,178	16,030,931	756,514
Bruce	23,027,787	8,293,662	2,138,525	6,250,771	39,710,745	2,789,967
Carleton	17,670,246	6,316,498	1,605,845	3,748,049	29,340,638	1,174,104
Dufferin	10,095,174	3,548,667	967,860	2,667,890	17,279,591	1,044,650
Dundas	8,079,896	3,539,631	982,785	2,070,448	14,672,760	510,818
Durham	12,928,225	5,381,612	1,297,753	3,023,315	22,630,905	1,153,437
Elgin	17,127,645	6,723,670	1,746,848	4,421,942	30,020,105	2,216,532
Essex	17,715,495	6,418,733	1,791,541	3,816,911	29,742,680	1,713,373
Frontenac	9,884,787	3,661,058	1,082,270	2,488,918	17,117,033	699,572
Glengarry	8,052,013	3,659,342	1,031,927	2,235,052	14,978,334	501,278
Grenville	6,748,716	3,169,117	716,839	1,659,891	12,294,563	403,888
Grey	22,621,756	9,742,329	2,834,912	7,221,352	42,420,349	3,148,751
Haldimand	8,143,676	4,170,070	1,109,677	2,189,527	15,612,950	899,514
Haliburton	1,174,332	395,866	146,143	423,529	2,139,930	102,401
Halton	9,295,232	4,420,400	876,780	1,991,175	16,583,587	818,474
Hastings	15,458,616	5,899,883	1,841,253	3,902,791	27,102,543	1,047,913
Huron	29,907,122	11,441,291	2,756,220	7,752,792	51,857,425	3,433,095
Kent	25,824,037	8,490,449	2,476,371	5,802,939	42,593,796	2,497,608
Lambton	20,751,360	6,610,600	1,934,250	5,092,353	34,391,563	2,207,955
Lanark	10,853,180	4,242,742	1,117,958	2,917,957	19,132,132	1,023,101
Leeds	11,498,958	4,617,952	1,206,918	2,803,568	20,127,396	994,010
Lennox and Addington	9,782,721	4,267,236	1,171,028	2,561,590	17,782,575	781,750
Lincoln	9,944,338	4,304,633	999,769	1,571,108	16,819,848	563,945
Manitoulin	1,175,746	460,205	181,322	640,242	2,457,515	174,743
Middlesex	31,589,741	11,234,603	2,580,271	7,779,818	53,175,463	3,454,056
Muskoka	2,383,156	990,203	336,235	847,561	4,557,155	216,496
Nipissing	1,376,020	393,740	174,588	386,946	2,330,294	67,880
Norfolk	11,393,249	5,151,549	1,423,456	2,665,285	20,633,540	1,432,389
Northumberland	13,923,184	6,073,317	1,538,181	3,163,210	24,128,222	1,056,374
Ontario	16,883,088	6,939,044	1,672,458	4,704,956	30,200,146	1,969,513
Oxford	20,971,506	9,023,894	1,964,256	5,184,226	37,143,882	2,168,851
Parry Sound	2,011,190	840,848	310,121	840,988	4,003,147	217,584
Peel	11,734,792	5,599,663	1,226,015	3,057,582	21,618,052	1,083,680
Perth	21,636,535	9,009,791	2,140,974	5,866,426	38,653,726	2,533,610
Peterborough	9,869,241	3,257,203	916,641	2,479,759	16,522,847	749,005
Prescott	7,488,102	3,035,568	881,347	1,831,444	13,336,571	695,428
Prince Edward	7,211,199	3,512,942	979,688	1,710,478	13,414,302	870,633
Renfrew	11,172,755	4,072,849	1,297,604	3,082,585	19,625,793	779,749
Russell	5,475,783	1,795,588	658,256	1,191,589	9,121,216	208,530
Simcoe	26,975,797	10,102,015	2,836,217	6,960,188	46,864,217	2,561,333
Stormont	6,789,399	3,228,193	900,880	1,657,447	12,566,820	389,462
Victoria	11,807,183	4,295,255	1,210,114	3,227,285	20,539,837	1,138,697
Waterloo	12,530,109	5,748,828	1,291,957	2,932,354	22,503,248	1,085,491
Welland	8,077,332	3,965,607	882,498	1,687,020	14,612,457	601,773
Wellington	21,392,957	8,738,426	2,053,977	5,951,694	38,134,029	3,241,438
Wentworth	13,740,439	5,925,047	1,312,287	2,527,499	23,535,342	830,181
York	24,878,605	9,598,225	2,158,229	4,685,996	41,321,055	2,101,829
The Province.						
1903	620,869,475	247,629,153	63,996,190	154,327,267	1,086,822,085	59,330,931
1902	604,860,953	237,289,668	62,199,787	140,544,814	1,044,891,332	53,083,396
1901	585,554,294	226,575,228	59,897,513	129,496,261	1,001,523,296	46,592,103
1900	574,727,610	219,488,370	57,324,130	123,274,821	974,814,931	41,642,617
1899	563,271,777	213,340,281	54,994,857	115,806,445	947,513,350	38,457,018
1898	556,246,569	210,054,396	52,977,232	103,744,223	923,022,420	31,696,587
1897	554,054,192	205,090,159	51,209,098	97,649,804	908,003,213	29,753,599
1896	557,468,370	205,235,429	50,730,358	96,857,566	910,291,723	28,748,995
1895	572,938,172	201,148,670	50,944,385	103,958,047	931,989,574	29,301,131
1894	587,246,117	201,071,566	51,530,172	111,547,652	954,395,507	31,935,589

FARM VALUES AND RENTALS.

TABLE XXV. Showing by County Municipalities of Ontario, average values per acre of farm property in 1903 and rentals of leased farms based upon (1) the total acreage occupied, and (2) the area cleared, together with the average for the Province for the past ten years.

Counties and Districts.	Farm Values, Average Per Acre Occupied.					Value buildings, implements and live stock, per acre cleared.	Rent Per Acre on Land.	
	Land.	Buildings.	Implements.	Live Stock.	Total.		Occupied.	Cleared.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Algoma	3 87	96	34	74	5 91	31 00	78	2 02
Brant	40 80	19 91	4 14	9 33	74 18	39 74	2 40	2 82
Bruce	24 98	9 00	2 32	6 78	43 08	31 20	1 59	2 04
Carleton	31 19	11 15	2 83	6 62	51 79	37 89	1 92	2 46
Dufferin	28 07	9 86	2 69	7 42	48 04	28 35	1 80	2 23
Dundas	34 07	14 93	4 15	8 73	61 88	41 24	2 13	2 89
Durham	34 80	14 49	3 49	8 14	60 92	32 80	2 18	2 59
Elgin	39 13	15 36	3 99	10 10	68 58	39 04	2 42	3 00
Essex	41 33	14 98	4 18	8 90	69 39	39 84	2 52	3 10
Frontenac	14 26	5 28	1 56	3 59	24 69	27 36	1 56	2 11
Glengarry	27 93	12 70	3 58	7 75	51 96	36 95	1 67	2 36
Grenville	25 01	11 74	2 66	6 15	45 56	32 14	1 27	1 75
Grey	21 18	9 12	2 65	6 76	39 71	29 84	1 34	1 82
Haldimand	29 04	14 87	3 95	7 81	55 67	31 90	1 76	2 16
Haliburton	2 07	70	26	75	3 78	24 02	59	1 09
Halton	41 39	19 69	3 90	8 87	73 85	41 49	2 01	2 83
Hastings	14 69	5 61	1 75	3 71	25 76	27 73	1 28	1 94
Huron	37 41	14 31	3 45	9 70	64 87	34 14	2 07	2 44
Kent	45 38	14 92	4 35	10 20	74 85	37 59	2 79	3 28
Lambton	31 42	10 01	2 93	7 71	52 07	31 36	1 62	2 20
Lanark	16 12	6 30	1 66	4 33	28 41	25 87	1 41	1 98
Leeds	24 31	9 76	2 55	5 92	42 54	30 77	1 51	2 20
Lennox & Addington	22 13	9 65	2 65	5 80	40 23	28 20	1 39	1 81
Lincoln	51 85	22 44	5 21	8 19	87 69	41 84	2 22	2 65
Manitoulin	4 86	1 90	75	2 65	10 16	31 14	57	1 45
Middlesex	41 66	14 82	3 40	10 26	70 14	35 16	2 13	2 62
Muskoka	4 37	1 81	62	1 55	8 35	35 49	58	2 07
Nipissing	4 05	1 16	50	1 13	6 84	31 39	64	1 81
Norfolk	28 62	13 04	3 58	6 69	51 93	35 10	1 94	2 48
Northumberland	30 53	13 89	3 52	7 23	55 17	31 45	1 94	2 41
Ontario	33 66	13 84	3 33	9 38	60 21	36 90	2 26	2 73
Oxford	44 50	19 15	4 17	11 00	78 82	41 91	2 50	3 07
Parry Sound	3 49	1 44	53	1 38	6 84	28 69	45	1 73
Peel	40 66	19 40	4 25	10 59	74 90	38 74	2 32	2 84
Perth	41 77	17 39	4 13	11 33	74 62	38 94	2 15	2 47
Peterborough	17 27	5 70	1 61	4 34	28 92	27 66	1 36	2 19
Prescott	25 78	10 79	3 03	6 31	45 91	34 78	1 59	2 35
Prince Edward	31 14	15 17	4 23	7 38	57 92	32 10	2 07	2 43
Renfrew	11 06	4 03	1 29	3 05	19 43	26 18	1 20	2 18
Russell	21 82	7 15	2 62	4 75	36 34	34 16	1 72	2 18
Simcoe	28 03	10 49	2 95	7 22	48 69	33 28	1 83	2 36
Stormont	27 26	12 98	3 62	6 66	50 52	38 65	1 41	1 94
Victoria	19 62	7 14	2 01	5 36	34 13	31 69	1 97	2 61
Waterloo	40 77	18 70	4 20	9 54	73 21	40 28	2 21	2 63
Welland	35 65	17 50	3 89	7 45	64 49	34 17	1 64	1 87
Wellington	34 07	13 92	3 27	9 48	60 74	34 95	1 94	2 46
Wentworth	50 39	21 73	4 92	9 27	86 31	45 04	2 39	2 86
York	46 29	17 86	4 02	8 72	76 89	37 72	2 77	3 22
The Province.								
1903	25 95	10 35	2 67	6 45	45 42	34 15	1 89	2 47
1902	25 49	10 00	2 62	5 93	44 04	32 43	1 85	2[illegible]
1901	24 76	9 59	2 53	5 48	42 36	30 96	1 82	2[illegible]
1900	24 37	9 31	2 43	5 23	41 34	30 09	1 80	2 48
1899	24 02	9 10	2 34	4 94	40 40	29 31	1 77	2 51
1898	23 78	8 98	2 26	4 44	39 46	28 23	1 76	2 56
1897	23 72	8 82	2 20	4 01	38 75	27 31	1 73	2 44
1896	24 06	8 85	2 19	4 18	39 28	27 84	1 88	2 54
1895	24 79	8 83	2 20	4 50	40 32	28 89	1 87	2 59
1894	25 49	8 86	2 23	4 84	41 42	29 86	1 88	2 65

MARKET PRICES.

TABLE XXVI. The following table is compiled from thirty-six well distributed market points from quotations in the local press. The figures for the four months, September-December, 1903, are also given, together with the average price for the past ten years, and the average for twenty-two years.

Markets.	Fall Wheat, per bush.	Spring Wheat, per bush.	Barley, per bush.	Oats, per bush.	Peas, per bush.	Beans, per bush.	Rye, per bush.	Buckwheat, per bush.	Corn (in ear), per bush.	Hay, per ton.	Potatoes, per bush.	Wool, per lb.
	cts.	cts.	cts.	cts.	cts.	$ c.	cts.	cts.	cts.	$ c.	cts.	cts.
Barrie	74.5	.....	40.4	28.2	60.6	.....	48.7	40.3	.....	8 14	43.6	9 3
Bowmanville	70.0	73.5	40.7	26.8	60.6	.....	50.0	39.0	.....	8 25	28.4	.....
Bracebridge	.....	79.0	55.0	32.5	65.0	.....	40.0	.....	.....	10 00	36.3	.....
Brampton	73.2	73.0	42.6	28.6	64.5	.....	49.9	.....	.....	.....	40.9	.....
Chatham	71.6	74.6	36.3	26.9	.....	1 15	.....	.....	32.2	7 07	.....	.....
Cobourg	73.5	72.8	42.3	27.8	63.2	.....	51.5	42.6	.....	6 50	32.9	.....
Cornwall	.....	.....	.....	33.9	.....	.....	.....	50.5	.....	8 00	47.3	.....
Dunnville	73.3	73.3	41.2	26.7	56.4	.....	45.0	47.1	32.7	5 80	43.1	.....
Essex	73.5	.....	40.2	27.8	95.0	.....	.....	.....	33.3	9 00	50.6	.....
Forest	71.8	.....	40.8	28.0	57.0	98	.....	.....	31.7	6 50	60.0	.....
Galt	73.1	73.1	45.2	31.7	66.0	.....	.....	.....	30.0	7 67	40.0	8.9
Goderich	71.3	74.2	37.7	27.0	54.6	.....	45.0	41.3	.....	6 64	34.2	.....
Guelph	73.2	71.6	41.3	31.6	70.0	.....	48.0	.....	50.0	8 11	49.5	7 5
Hamilton	74.7	74.7	46.9	30.1	.....	.....	49.5	.....	.....	9 58	45.0	.....
Kingston	72.5	72.5	44.4	28.5	75.0	.....	50.0	50.0	.....	6 77	57.5	.....
Lindsay	72.1	70.7	38.0	27.2	60.0	.....	46.9	34.7	.....	8 43	29.4	.....
London	77.1	.....	41.3	29.1	85.3	.....	54.8	53.0	38.5	7 72	58.2	8 5
Morrisburg	76.1	76.1	.....	32.5	.....	1 71	.....	46.6	40.0	9 60	45 0	.....
Mount Forest	69.9	69.5	40.1	28.7	63.4	.....	.....	.....	.....	6 50	46.9	11.3
Oakville	74.6	73.5	42.7	27.9	62.5	.....	45.8	.....	.....	9 56	43.5	14.1
Orangeville	72.7	71.7	39.9	25.8	59.7	.....	47.5	38.7	.....	7 50	29.9	8.9
Ottawa	.....	.....	.....	38.1	75.0	1 43	.....	57.5	.....	10 00	56.8	.....
Owen Sound	71.7	.....	44.3	28.6	58.4	.....	.....	.....	.....	7 19	39.9	8 0
Paris	75.3	75 3	44.1	28.0	60.0	.....	47.3	.....	.....	7 50	48 7	.....
Pembroke	82.0	82 0	39.0	32.3	60.1	1 61	46.8	.....	.....	9 30	42.5	.....
Perth	87.5	90 0	46.7	31.3	69.0	.....	45.0	41.8	.....	8 50	49.2	15 5
Peterborough	75.1	75 1	42.5	29.9	64.1	.....	48.6	46.0	.....	8 56	41.3	.....
Picton	70.8	67.3	39.7	28.6	60.8	1 25	47.7	43.3	.....	7 25	50.7	11.0
St Thomas	74.1	74.1	51.5	30.3	.....	1 22	.....	.....	36.3	7 50	66.4	7 2
Simcoe	75.1	.....	39.6	28.7	.....	.....	47.3	39.8	33.3	6 50	.....	.....
Stratford	73.3	.....	37.7	27.1	58.5	.....	.....	.....	.....	7 50	41.4	15.7
Toronto	80.7	80.4	47.4	33.3	65.6	1 75	53.0	46.5	.....	9 97	45.9	10.0
Walkerton	73.7	.....	40.0	27.5	58.7	.....	.....	.....	.....	6 67	31.3	.....
Waterloo	73.8	.....	41.3	28.4	60.0	.....	.....	.....	.....	8 50	36.4	.....
Welland	76.0	76.0	.....	26.7	.....	.....	47.5	.....	36.7	7 00	38.7	.....
Whitby	74.1	74.0	41.7	28.8	.....	.....	49.0	41.4	.....	9 50	31.4	7 5
The Province:												
September	75.3	73.3	43.1	30.0	65.0	1 46	47.8	46.0	38.0	7 90	44.1	9 8
October	74.5	74.1	42.6	29.5	64.1	1 44	48.9	44.8	37.1	7 94	42.7	10 1
November	75.5	75.1	42.0	28.9	64 2	1 41	48.9	43.2	36.3	8 03	43 0	10 1
December	75.1	75.1	40.8	28.2	63.6	1 37	48.9	43.4	36 0	7 91	46 7	10.3
1903	75.1	74.4	42.1	29.3	64 3	1 41	48.6	44.3	36.9	7 94	44.1	10 6
1902	70.7	69.6	45.1	34.8	71.0	1 35	50 5	48.0	40.6	8 15	56 5	12.8
1901	66.1	66.8	45.0	36.2	65.3	1 25	49.3	48.4	38.0	7 99	42.6	13.4
1900	66.4	67.5	38.9	26.5	57.1	1 00	48.5	43.7	31.7	8 48	50.1	15.4
1899	66.7	66.5	39.5	27.7	57.3	1 08	50.0	45.5	19.8	7 72	32.8	14.3
1898	69.4	69.2	38.0	25.8	52.2	70	43.5	38 2	20.1	6 22	44.1	16.6
1897	78.2	78.6	27.0	22.6	42.1	65	37.7	30.0	19.7	7 18	39.9	18.4
1896	71.0	70.6	31.6	20.9	44.0	68	36.6	30.5	19.6	9 68	26.2	18.4
1895	69.3	69.8	40.0	29.1	54.8	95	45.6	36.8	22.6	12 30	20.2	20.0
1894	55.0	55.5	40.5	30.8	53.6	1 10	44.2	39.2	26.1	7 56	35.4	16.9
1882–98	78.1	80.6	47 5	31.4	58.1	1 05	51 3	40 3	*27 3	8 94	40.1	17.3

* Average for the twelve years 1902-1903.

CHEESE FACTORIES.

TABLE XXVII.—Showing by county Municipalities of Ontario the number of Cheese factories in operation, the quantity and value of cheese made, the number of patrons and the amount paid to patrons for milk delivered at the factories in 1903, together with the totals for the Province for the past ten years.

COUNTIES AND DISTRICTS.	Factories in operation.	Quantity of—		Gross value of cheese.	Average number of patrons.	Milk used to make 1 lb. of cheese.	Value of cheese, per 100 lbs.	Amount paid to Patrons at the Factory.	
		Milk Used.	Cheese Made.					Total.	Per 100 lbs. milk.
		lbs.	lbs.	$			$ c.		cts.
Algoma	2	500,000	50,000	5,000	50	10.00	10.00	4,304	86.1
Brant	9	14,745,899	1,377,704	141,190	677	10.70	10.25	125,953	85.4
Bruce	11	13,566,787	1,272,465	134,220	829	10.66	10.55	120,641	88.9
Carleton	57	68,381,787	6,543,516	679,461	2,172	10.45	10.38	602,261	88.1
Dufferin	3	2,955,435	273,277	27,613	178	10.81	10.10	24,147	81.7
Dundas	72	103,590,375	10,009,432	1,062,163	2,147	10.35	10.61	953,110	92.0
Durham	11	17,048,018	1,592,878	166,441	877	10.70	10.45	148,391	87.0
Elgin	20	54,002,924	5,078,778	524,284	1,775	10.63	10.32	471,368	87.3
Essex	3	1,623,848	160,873	16,892	127	10.09	10.50	15,125	93.1
Frontenac	71	97,094,625	9,384,423	972,450	2,587	10.35	10.36	873,219	89.9
Glengarry	63	67,485,292	6,472,527	673,079	1,896	10.43	10.40	598,518	88.7
Grenville	10	61,960,720	5,938,631	622,956	1,773	10.43	10.49	555,909	89.7
Grey	3	2,022,000	188,306	19,214	153	10.74	10.20	16,943	83.8
Haldimand	7	11,202,246	1,070,191	110,940	726	10.47	10.37	98,071	87.5
Haliburton	5	1,284,407	127,358	13,290	88	10.09	10.44	11,172	86.9
Hastings	94	150,128,448	14,268,063	1,489,584	4,101	10.52	10.44	1,353,752	90.2
Huron	7	9,333,220	849,606	88,259	534	10.99	10.15	77,160	82.7
Kent	2	1,195,757	110,677	10,899	102	10.80	9.85	9,461	79.1
Lambton	11	12,198,794	1,142,680	117,666	869	10.68	10.30	103,462	84.8
Lanark	44	66,685,830	6,221,351	647,098	2,354	10.72	10.40	577,481	86.6
Leeds	80	127,382,279	12,082,349	1,260,935	2,571	10.54	10.44	1,135,448	89.1
Lennox and Addington	31	75,460,311	7,381,706	769,595	2,795	10.22	10.43	680,645	90.2
Lincoln	5	7,871,828	747,198	75,191	497	10.54	10.06	67,682	86.0
Middlesex	30	80,640,786	7,582,704	791,860	2,150	10.63	10.44	711,864	88.3
Muskoka & Parry Sound	2	374,391	36,412	4,042	32	10.28	11.10	3,439	91.9
Norfolk	23	40,815,092	3,963,552	399,056	2,238	10.30	10.07	355,435	87.1
Northumberland	10	77,286,364	7,182,034	748,520	2,688	10.76	10.42	664,131	85.9
Ontario	3	1,044,591	98,106	10,453	85	10.65	10.65	8,975	85.9
Oxford	42	143,059,548	13,437,667	1,391,395	3,373	10.65	10.35	1,262,367	88.2
Peel	2	1,424,375	137,667	14,625	40	10.35	10.62	12,953	90.9
Perth	25	54,236,884	5,063,692	530,459	2,315	10.71	10.48	475,239	87.6
Peterborough	38	56,491,718	5,294,682	560,315	2,270	10.67	10.58	500,432	88.6
Prescott	68	55,484,638	5,531,494	564,236	1,960	10.03	10.20	496,475	89.5
Prince Edward	22	48,270,834	4,654,952	482,013	1,714	10.37	10.35	427,504	88.5
Renfrew	21	23,949,851	2,210,997	235,538	1,184	10.83	10.65	204,628	85.4
Russell	53	48,682,370	4,785,280	496,464	1,809	10.17	10.37	441,366	90.7
Simcoe	8	4,968,886	471,626	47,848	392	10.54	10.15	41,255	83.0
Stormont	18	72,311,653	7,063,194	737,022	1,806	10.24	10.43	663,070	91.7
Victoria	17	21,082,529	2,002,825	208,265	1,126	10.53	10.40	183,590	87.1
Waterloo	7	8,901,975	834,117	86,237	496	10.67	10.34	76,932	86.4
Welland	5	4,017,248	384,611	39,393	304	10.44	10.24	35,348	88.0
Wellington	9	13,535,362	1,245,854	128,454	768	10.86	10.31	115,557	85.4
Wentworth	6	9,301,194	879,814	90,159	444	10.57	10.25	79,403	85.4
York	2	1,064,748	101,504	10,459	86	10.49	10.30	9,068	85.2
The Province.									
1903	1,126	1,734,676,167	165,306,573	17,203,233	57,102	10.49	10.41	15,393,250	88.7
1902	1,127	1,537,532,591	146,805,776	14,792,924	55,843	10.47	10.08	13,153,255	85.5
1901	1,167	1,434,540,520	134,942,517	12,269,073	59,377	10.63	9.09	10,814,538	75.4
1900	1,173	1,366,433,199	127,789,543	13,023,025	59,290	10.61	10.19	11,682,470	85.5
1899	1,243	1,311,530,927	123,323,923	12,120,887	60,445	10.63	9.83	10,682,193	81.4
1898	1,187	1,374,399,482	128,116,924	10,252,240	65,121	10.73	8.00	8,417,535	61.2
1897	1,161	1,455,937,148	137,362,916	11,719,468	66,104	10.60	8.53	9,709,004	66.6
1896	1,147	1,108,124,659	104,393,985	8,646,735	57,635	10.62	8.28	7,040,927	63.5
1895	1,164	1,174,048,592	109,230,340	8,607,389	65,661	10.75	7.88	6,922,962	59.0
1894	1,011	1,027,577,831	97,281,547	9,411,245	54,839	10.56	9.70	7,931,022	77.2

AGRICULTURAL STATISTICS OF THE UNITED STATES.

Wheat.

Year.	Acres.	Bushels.	Total value.
1903	19,464,967	637,821,835	$443,024,820
1902	16,202,121	670,063,008	422,234,147
1901	19,895,544	748,460,218	467,[illegible],156
1900	12,490,485	522,229,505	323,525,177
1899	11,592,516	547,303,846	319,545,259
1898	11,055,278	675,148,705	392,770,320
1897	30,865,006	530,149,168	428,540,224
1896	31,038,656	427,684,346	310,602,[illegible]
1895	34,047,332	467,102,947	237,[illegible],998
1894	34,882,436	460,267,416	225,[illegible],625
1893	34,929,418	396,131,725	213,171,[illegible]
1892	38,564,130	515,949,000	322,111,[illegible]
1891	39,916,897	611,780,000	513,172,711

Corn.

Year.	Acres.	Bushels.	Total value.
1903	88,091,993	2,244,176,925	$962,[illegible]
1902	94,013,613	2,523,648,312	1,017,017,349
1901	91,349,928	1,522,519,891	921,555,762
1900	83,324,872	2,105,102,526	751,220,034
1899	82,108,587	2,078,143,933	629,240,[illegible]
1898	77,721,781	1,924,184,660	572,[illegible]
1897	80,095,051	1,902,967,933	560,[illegible]
1896	81,027,156	2,283,875,165	491,006,967
1895	82,075,830	2,151,138,580	544,[illegible]
1894	62,582,269	1,212,760,052	554,719,162
1893	72,636,165	1,619,496,131	591,625,627
1892	70,626,058	1,628,464,000	642,146,630
1891	78,204,515	2,060,154,000	886,[illegible]
1881*	61,262,025	1,194,916,000	759,482,170

* Most serious crop failure of the generation.

Other Crops.

	1903.		1902.	
	Acres.	Bushels.	Acres.	Bushels.
Oats	27,638,126	781,091,199	28,656,144	987,842,712
Barley	4,993,137	151,861,391	4,661,063	134,954,023
Rye	1,906,894	29,663,416	1,978,548	33,630,592
Buckwheat	804,393	14,243,644	804,889	14,529,770

CROPS IN THE NORTHWEST TERRITORIES.

Year.	Wheat.		Oats.		Barley.		Flax.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.
1898	307,580	5,542,478	105,077	3,040,307	17,092	449,512	.....	.....
1899	363,523	6,915,623	134,938	4,686,036	14,276	337,421	.....	.....
1900	412,864	4,028,294	175,439	4,226,152	17,044	353,216	.....	.....
1901	504,697	12,808,447	229,439	11,013,066	24,702	795,100	.....	.....
1902	625,728	13,956,850	310,367	10,661,295	36,445	870,417	17,067	158,185
1903	837,234	16,029,149	440,662	14,179,705	68,974	1,842,824	32,431	292,852

CROPS IN MANITOBA.

Year.	Wheat.		Oats.		Barley.		Flax.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.
1889	623,245	7,201,519	218,744	3,415,104	80,238	1,051,551	.....	.....
1890	746,058	14,665,769	235,534	9,513,443	66,035	2,069,415	.....	.....
1891	916,614	23,191,599	305,644	14,762,605	89,828	3,197,876	.....	.....
1892	875,990	14,453,835	332,974	11,654,090	97,644	2,831,676	.....	.....
1893	1,003,640	15,615,923	388,529	9,823,935	114,762	2,547,653	9,737	116,454
1894	1,010,186	17,172,883	413,686	11,907,854	119,528	2,981,716	30,500	336,000
1895	1,140,276	31,775,038	482,653	22,555,733	153,839	5,645,036	.....	1,281,354
1896	999,598	14,371,806	442,445	12,502,318	127,885	3,171,747	.....	269,143
1897	1,290,882	18,261,950	468,141	10,629,513	153,266	3,183,602	.....	247,836
1898	1,488,232	25,313,745	514,824	17,308,252	158,058	4,277,927	.....	350,000
1899	1,629,995	27,922,230	575,136	22,318,378	182,912	5,379,156	21,780	304,420
1900	1,457,396	13,025,252	429,108	8,814,312	155,111	2,939,477	20,437	164,313
1901	2,011,835	50,502,085	689,951	27,796,588	191,009	6,536,155	20,978	266,420
1902	2,039,940	53,077,267	725,060	34,478,160	329,790	11,848,422	41,200	564,440
1903	2,442,873	40,116,878	855,431	33,035,774	326,537	8,707,252	55,900	586,950

CROPS IN MANITOBA.—*Continued.*

Year.	Rye.		Peas.		Potatoes.		Roots.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.
1893	2,229	29,422	.....	.....	.....	1,649,385	20,919	3,896,798
1894	.....	59,924	.....	18,434	.....	2,035,336	7,880	1,841,942
1895	.....	81,082	.....	28,229	16,716	4,042,562	6,785	2,285,283
1896	.....	52,255	.....	23,383	12,260	1,962,490	6,715	1,898,805
1897	.....	48,344	.....	33,380	13,576	2,033,298	6,130	1,220,070
1898	.....	63,860	.....	31,880	19,791	3,253,038	8,448	2,471,715
1899	3,217	64,340	1,366	20,490	19,151	3,226,395	10,079	2,670,108
1900	2,480	25,792	780	9,048	16,880	2,226,880	7,482	1,452,780
1901	2,707	62,261	879	16,349	24,429	4,797,433	10,214	2,926,362
1902	2,559	49,900	1,596	34,154	22,005	3,459,325	12,175	3,230,995
1903	4,899	88,182	2,357	41,483	27,198	4,757,000	12,251	3,452,340

PART II.—CHATTEL MORTGAGES.

Table showing by County Municipalities of Ontario the total number and amount of Chattel Mortgages on record and undischarged on December 31st, 1903, against (1) all occupations, (2) farmers; together with totals for the Province for the past ten years.

Counties and Districts.	Chattel mortgages against all occupations.				Chattel mortgages against Farmers.			
	To secure existing debt.		For future indorsation.		To secure existing debt.		For future indorsation.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
		$		$		$		$
Algoma	262	*1,486,056	1	500	114	19,837		
Brant	319	326,022			113	75,753		
Bruce	499	196,302	3	6,271	308	95,047	1	171
Carleton	379	433,435	5	10,745	40	17,348		
Dufferin	134	63,082	1	4,000	104	38,091		
Elgin	417	165,370			202	60,734		
Essex	441	233,683			223	73,426		
Frontenac	324	130,796			163	58,989		
Grey	655	228,585	2	2,350	489	140,299		
Haldimand	110	55,989			80	28,480		
Haliburton	60	15,089	1	1,000	50	5 004		
Halton	79	108,807			31	69,729		
Hastings	628	311,102	18	†184,376	471	120,029	11	759
Huron	223	187,269	5	2,297	109	49,095	1	79
Kent	1,075	356,264	4	903	832	216,830	3	503
Lambton	409	210,494	91	22,816	266	92,038	56	12,086
Lanark	168	82,002	3	280	89	25,578	1	169
Leeds and Grenville	304	133,260	1	5,000	169	42,417		
Lennox and Addington	219	94,507	2	549	121	56,813	1	70
Lincoln	168	‡125,954	1	500	58	23,050		
Manitoulin	85	39,615			67	18,845		
Middlesex	488	241,521			141	78,712		
Muskoka	177	167,980			81	14,805		
Nipissing	362	§2,690,517	1	¶184,550	213	50.940		
Norfolk	196	161,555			145	37,635		
Northumberland and Durham	387	247,975			248	150,551		
Ontario	247	205,521	1	500	152	90,204		
Oxford	222	184,399	1	575	80	26,468		
Parry Sound	149	‖1,226,312			69	13,450		
Peel	109	55,027			79	29,521		
Perth	132	75,794			64	42,543		
Peterborough	248	151,631			129	68,994		
Prescott and Russell	136	49,318			94	29,712		
Prince Edward	114	94,491	4	5,500	70	29.343		
Rainy River	51	129,322			3	726		
Renfrew	228	124,678	3	850	154	61,023	1	150
Simcoe	598	571,983			405	135,376		
Stormont, Dundas and Glengarry	234	91,934	28	29,157	155	54,164	11	4,709
Thunder Bay	34	25,724			5	970		
Victoria	177	88,659	3	947	134	49,875	1	50
Waterloo	209	222,537	3	15,312	46	29,594		
Welland	211	120,057	1	6,000	82	17,665		
Wellington	239	170,017			100	49,038		
Wentworth	785	401,100	2	**1,000	133	51,536	1	700
York	2,196	††1,872,865	2	6,000	213	108,481		
The Province:								
1903	14,885	14,354,605	187	491,978	7,085	2,548,758	88	19,446
1902	15,684	10,890,615	142	1,099,188	7,193	2,616,538	42	21,387
1901	16,299	10,613,564	247	237,445	7,757	2,854,759	134	30,207
1900	17,321	11,669,806	307	499,184	8.440	3,110.543	121	30,840
1899	18,216	11,067,664	291	324,628	9,392	2,988,853	124	34,798
1898	19,526	12,001,075	283	281,142	10,514	3,547,554	117	32,943
1897	21,144	13,004,342	382	377,853	11,902	3,889,190	201	44,410
1896	21,402	13,180,205	387	381,511	11,638	3,826,582	206	51,416
1895	22,018	10,555 922	373	456,398	12,121	3,711,338	167	56,258
1894	21,276	10,603,393	483	616,812	11,447	3,378,079	240	68,806

* Not including 4 blanket mortgages for $16,500,000 on Consolidated Companies' bonds. (These were not floated but a loan of $5,050,000 was secured on them.)

† Including one manufacturer for $75,151 and an electric light Co. for $125,000. ‡ Not including mortgages to secure bonds on Cataract Power Co. for $5,000,000 and on H. G. & B. Electric Ry. Co. for $85,000.

§ Including 20 lumbermen for $1,076,511 and 2 pulp manufacturers for $1,459,000. ¶ Lumberman.

‖ Including 19 lumbermen for $1,177,690. ** Not including mortgages on 1 brewery for $300,000, one electric railway for $150,000 and one Electric Co. for $5,000,000. †† Including 223 hotels for $811,477 and 36 manufacturers for $354,598.

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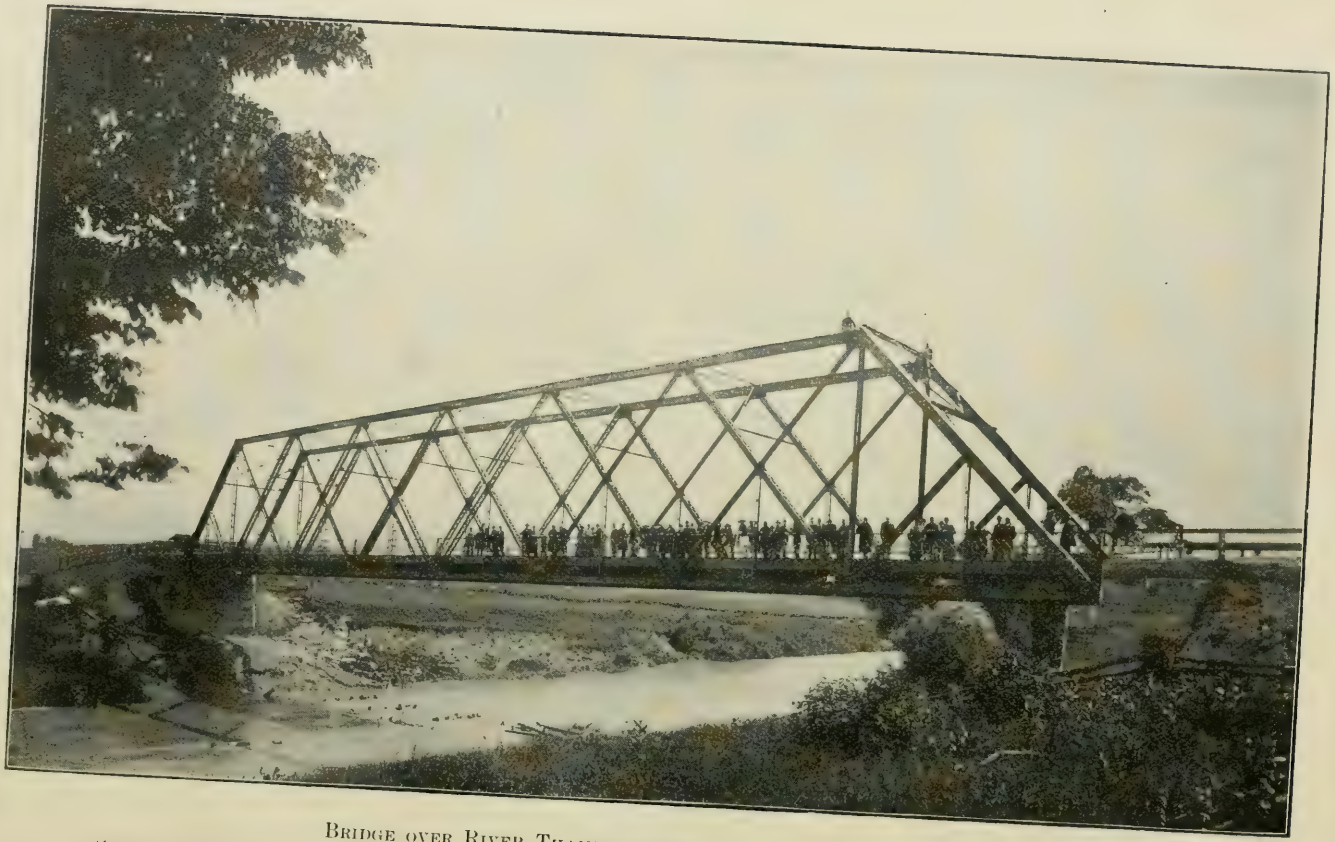

Bridge over River Thames, between Elgin and Middlesex.
Span, 240 feet ; roadway, 16 feet ; concrete abutments, steel superstructure, concrete floor on expanded metal.

Eighth Annual Report

OF THE

Commissoner of Highways

Ontario

1903

PRINTED BY ORDER OF

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1904

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To the Honorable F. R. LATCHFORD,
Commissioner of Public Works.

Sir, — I have the honor to submit to you the following report for the year 1903, being my eighth annual report on Road Improvement in Ontario.

I have the honor to be, Sir,

Your obedient servant,

A. W. CAMPBELL,

Commissioner of Highways.

Parliament Buildings,
Toronto, Ontario, 29th Feb., 1904.

Eighth Annual Report

OF THE

Commissioner of Highways

WHAT IS BEING DONE FOR BETTER ROADS.

Much has been done, and is being done, to improve the condition of country roads in this Province. In 1796, when the first Parliament of Ontario (then Upper Canada) assembled at Niagara-on-the-Lake, among the first Acts was one establishing a system for opening and maintaining roads. From that day to the present, road-making has been one of the chief concerns of municipal government. Unfortunately, much of the effort and energy applied to the improvement of roads has not been systematically directed, so that the condition of the average country road is, by no means, what it should be. This is unfortunate in many ways. But the recent activity in regard to "the good roads movement" has accomplished much, and is most encouraging. A general reform of roadmaking methods is gradually being brought about, with a corresponding improvement in the condition of the roads.

In the past, roadmaking has been, by many, too lightly regarded. Its importance has not been seriously realized. Yet the result of a careful summing up of all facts pertaining to the problem leads to but one conclusion. The development of any, of every, country is absolutely impossible without good country roads.

Good or bad country roads are not merely a matter of convenience or inconvenience to the farmer and his family. They affect the annual income, and the value of the farm many times what the cost of a good road would be. Millions of dollars have been spent upon railways and their equipment, canals, harbors, lake and ocean steamship lines, yet without common country roads all this vast expenditure would be futile. Every ton of freight has to be carried to or from the railway or steamer over the common roads. At a period of bad roads, railway and steamship traffic is reduced to a minimum and the current of trade is much impeded. No public work would contribute more to the individual prosperity of the citizens of every class, than would the general improvement of country roads. While farmers would be most largely and most directly affected, all would feel the benefit. A country of good roads is invari-

A County Road in Wellington.

ably a country of good houses, good barns, and a contented and prosperous farming community.

The organization of the Ontario Good Roads Association in 1894 was the first step towards a campaign for road reform. It was felt by those interested in this Association that the existing systems of road maintenance, almost wholly dependent upon statute labor, had outlived their usefulness, and that the adoption of modern and efficient methods should be urged. Delegates were selected to address farmers' institutes, dairymen's and other conventions held in the Province. In this way the subject was first brought before the public, and a more active interest aroused.

Two years later, in 1896, the Ontario Government created an office, that of the Provincial Highway Commissioner, for the purpose of further stimulating an interest in the improvement of country roads. By means of literature on the subject, township councillors and others having supervision of road-building throughout the Province, have been instructed as to the best means to adopt in obtaining economical and permanent results. Public meetings have been held in all parts of the Province, addressed by the Commissioner of Highways, at which roadmaking in all its branches has been discussed. These meetings, with rare exceptions, have been largely attended, and a strong interest in road improvement has been aroused, which, directly or indirectly, is turned to practical account on the roads of the districts thus visited, and in the system of road management. Throughout the Province there has been a general improvement as regards methods of draining roads, grading them, applying gravel or stone, construction of culverts and bridges, and the roadmaking implements used.

By the end of 1903, about one hundred and thirty townships had abolished or commuted statute labor, and in its place (with more or less modification), had adopted systems whereby fewer and more permanently appointed road overseers take the place of the pathmasters of the statute labor system, and by which all road work is paid for in a business-like way. Proper roadmaking machinery is being employed, definite methods of doing the work have been established, and, altogether, new life has been infused into road improvement wherever the new plans have been adopted.

The Eastern Ontario Good Roads Association, formed in 1901, has been active in the eastern portion of the Province in advancing the cause of better roads, and has rendered exceedingly valuable service, the "good roads train" operated throughout the eastern counties in 1901-2, being the most noteworthy of its efforts.

The Western Ontario Good Roads Association, formed in 1902, on a basis similar to the Eastern Ontario Association, has held three very interesting conventions, while more active measures are in view.

As is to be expected, municipalities are everywhere, with the growing wealth and requirements of the country, making more generous appropriations to the work of road improvement. This is as it should be. The saving effected by good roads, the loss resulting from bad roads, are such as to satisfy every citizen who studies the question that the more permanent improvement of the roads cannot be too soon brought about in the interest of true economy. The cheapest in first cost is rarely the most economical after a term of years. Had the councillors of ten years ago expended money upon the roads with a view to the requirements of to-day, as well as their temporary needs, the good roads movement would not have so great a task before it. Councils of to-day should not forget that good roads will be needed ten years hence, and by working to this end, they will render a vastly greater service to the present interests as well.

Legislation with regard to roads has been progressive, but without incautious haste. Toll roads, the purchase of road machinery, and the appropriation of a million dollars to aid highway improvement, have been the principal matters for Governmental consideration. It has been urged by some that the Legislature might take action with regard to statute labor. On the other hand, it has been felt that the individual townships are so rapidly, of their own accord, making a change in this respect, that further legislation in the matter is unnecessary. Every township has for many years had the power to do away with statute labor, and to establish such a plan for road management as they may consider best suited to local requirements. The spirit of most municipal legislation has been permissive, rather than compulsory, and it is doubtful if it would yet be in the best interests of road improvement to make any exception as regards statute labor, in spite of its many unfair features. Instead, by carrying on a campaign of education, the people will better understand the reasons for a change, and will undertake it with a greater willingness to make the new methods a success. The best system that can be devised for making and repairing the roads may be injurious rather than beneficial if it is

not intelligently and faithfully carried into effect. To ensure the success of new methods it is necessary that, at least, the interest and enthusiasm of a certain portion of the people be first aroused.

COUNTY ROAD ASSOCIATIONS.

Representatives from all the municipalities within the United Counties of Northumberland and Durham assembled at Cobourg on the 27th of January, 1904, and organized the "Counties Good Roads Association," the first of so local a nature to be formed in the Province. Such an association could exist with profit in every county. Road improvement is a problem deserving, at the present time, and for all time to come, the most careful study of municipal councillors and officials. The interchange of ideas, as to methods of roadmaking, is alone of much importance, while there are certain matters of more than town or township importance, which affect the country as a whole, and which can best be discussed and adjusted at a convention of all municipal councillors within the county. Where a county is small, the association might comprise the councillors of two or three adjoining counties.

The notice of the convention, signed by Neil F. MacNachton, Counties' Clerk, and addressed to each municipal council in the county, was as follows:

"In accordance with instructions from the counties' council and the wishes of the majority of the municipalities of these counties, expressed in reply to circular mailed on 24th July last, I am directed to call a meeting of delegates from the several municipalities to meet here on Wednesday, Jan. 27th, 1904, at 1 o'clock p.m for the formation of a Counties' Good Roads Association. The majority of the municipalities favor two delegates from each. You can be guided in your own judgment in this regard for the initial meeting. A. W. Campbell, Esq., Commissioner of Highways, will be present to assist.

"The principal subjects to be considered will be: The best system of managing roads; the implements necessary for doing the work in the best and cheapest manner; the most serviceable material to use in the construction and repair of roads; how this material should be prepared and how it should be applied; the proper material for use in building culverts, bridges, abutments, super-structures, floors, etc., and the proper system for repairing and looking after the roads when they once have been properly built.

"I trust that your council will appoint delegates with power to act in the best interests of road building within your municipality and the counties generally, and furnish them with their credentials."

STATUTE LABOR.

The system of statute labor was established in this Province more than a century ago, under the regime of General Simcoe, the first Lieutenant-Governor of the newly-formed Province of Upper Canada. The population was then very scattered, about 70,000 in all, while Toronto was little more than an Indian camping ground. Statute labor was in keeping with pioneer life, when the need for roads was urgently felt, when the work consisted of cutting down trees, clearing the road allowance of logs and stumps, corduroying swamps and throwing up an earth grade.

To-day circumstances are very different. The pioneer work has been done on the roads, as well as on the farm. On the latter we have dispensed with the cradle and the flail, and are using self-binders, steam threshers, and many other efficient farming implements. For

STREET IN RENFREW.

roadwork, machinery has been provided —graders, stone-crushers, steam rollers —all a means of economy, just as much as modern farm machinery. It should not be difficult for the people of this agricultural Province, progressive in all that pertains to farming, to understand that improved methods are needed for road-making, and that a system in keeping with these methods should be adopted.

Responsibility is Divided.

Under the statute labor system responsibility for all work is not centred in one man. No one officer can be held responsible for the condition of the roads, nor for the expenditure of money and labor upon them. Responsibility is first distributed among the members of the council, and by them among fifty or one hundred pathmasters. When work is improperly done, or money misspent, there is no one whom the ratepayers can call to account with any degree of effect.

Does not Meet Present Conditions

The payment of a road fund in labor is too vague and clumsy to meet present conditions. The need of roads is not so keenly felt as in the time of early settlement, and there is not the same incentive to hard and careful work. Men work on the roads very much as they work on their farms. Some are energetic and resourceful; but some are shiftless, some lazy, some stupid, some careless, and so the list might be carried on. Each works, plans the work, or oversees it according to his own ideas. The statute labor system in this respect is not so much a sytem as an entire absence of system.

There is not, to-day, a united effort put forth by all to do good work on the roads, as was done under pioneer conditions. Even if there were, it would not be efficient in the operation and management of machinery, and in laying the quality of roadbed demanded by those who use the roads.

Money Appropriations are not Economically Expended.

Township roads are not kept by statute labor done. The ratepayers of many townships who know only of the grants for small repairs, scattered here and there over the townships, do not realize how much money is, in the aggregate, spent on their roads in the course of a year. The amount is in no sense objectionable, and if the money were applied to the best advantage there are few townships which could not spend even more than they are now doing on road improvement.

The difficulty arises from the fact that this money is spent on the statute labor

basis. The making of money appropriations was commenced many years ago with a view to supplementing statute labor. They were then very small amounts, but with the growth of the Province, this practice has increased, until, in many instances, the total money appropriation exceeds the statute labor for the year, valued at one dollar a day. Thus the money spent has constantly increased until it is of greater consequence than the statute labor, but the latter is permitted to govern the expenditure of the former.

Repairs are Not Made When Needed.

Under statute labor, work is done at one time of the year only. For the remainder of the year the roads are neglected, and repairs are not made when first needed. In the maintenance of a road, there is nothing more economical, or more satisfactory to the users of the road, than to have repairs made as soon as signs of wear appear. When roads are kept in a smooth condition, they are pleasant to drive on, and in a term of years cost much less than a road that is allowed to get rough. A rough road wears out much more quickly than a smooth road does. It is the hammering and pounding of a wheel on a rough road that does most damage—not the even roll of a wheel on a smooth road. When a depression starts on the surface of a road, the hammering of wheels as they drop into it very quickly creates a rut. Statute labor does not provide for the constant maintenance of a road.

Improvements are Not Made Systematically.

Road improvements, under the statute labor system, are not carried out systematically from year to year. Instead, it is understood that the pathmaster for the year will do such work as he desires in front of his own farm. No matter how urgently grading or ditching may be needed, if it is more convenient for the farmer to haul gravel he does so, or vice versa. The wishes of the man who is to do the work, not the work itself, are a first consideration. While one road section may be good, and statute labor properly performed, there are other sections in the township where work is only half done. It is almost useless for one section to keep up its roads when those who do the work on them are certain to drop off at the end of them into bog holes and impassable mires of the surrounding sections. The work of one year can have no connection with that of the following year in carrying out a well-defined plan. The work of one pathmaster may even be rendered useless by the work of a new pathmaster the following year, while there is no unison between one road-beat and those adjoining it.

Statute Labor is Not Equitable.

The difficulty of maintaining a road may increase or diminish half a dozen times in crossing a township, according as the soil is clay, loam, sandy, gravelly, dry, or swampy, yet there is not, under statute labor, a proper means of equalizing the work of keeping up the roads, and it is, therefore, inevitable that a road cannot be kept in a uniformly good condition. This is unfair to many of the users of the roads, as well as to those who are required to build and keep in repair the difficult sections.

Men who are interested in securing money grants are encouraged to neglect their own roadwork. It follows that those who do their roadwork faithfully must also pay for the work done by means of money grants for the men who will not perform their statute labor.

Some men give a full day's work, others pay one dollar, or the township rate of commutation. Other men give only a part of a day's work, and in

A Good Gravel Road.—But with a wider grade than is necessary.

some townships methods are so lax that they can escape without giving either labor or money.

A difference of a dollar in assessment, or an acre in the extent of a farm, may make a difference of a day in the amount of statute labor required.

A good pathmaster will create ill-feeling between himself and some of his shiftless neighbors if he demands even a reasonable performance of their statute labor. Rather than do this, most pathmasters permit their men to work as they see fit, or come equipped with any class of tools, wagons or teams.

The System is Wasteful.

A great amount of statute labor is wholly wasted—the time spent by a hundred or so pathmasters attending the clerk's office to qualify for office, calling out those on their road list, and acting as bosses; the time lost by those who come to work too late or stop too early; the time lost in doing work as an annual holiday, in carelessly planning the work, in hauling sand and loam instead of gravel, in working at wrong seasons of the year, in having too few teams or too few shovellers, etc.

Better Management is Needed.

Nearly all the foregoing objections to statute labor centre around the fact that roadmaking is a matter requiring, on the part of those who have it in charge, experience, study, and a certain class of ability. It is a very common idea that any one can manage a farm, that no previous training is required. The same impression exists to even a greater degree regarding roadmaking, and is responsible for an alarming amount of waste, as well as for bad roads. This is exemplified by the fact that some roads are graded forty feet wide, some thirty, some twenty, some less. Some think a road should be rounded up in the centre to a dangerous height, others think a road should be flat, and see nothing wrong if the road is hollow in the centre. Some think a certain road should be drained, others that it should be mounded up with gravel, and so on through all details of improving the one road; yet all cannot be right. Pathmasters do not remain in office long enough to become expert, and even if they did, they would be much handicapped in using statute labor to the best advantage, owing to the difficulty of getting men when they are needed, in getting them to do the work well, or as they are directed, and so on throughout all the details of the work. Statute labor does not provide an experienced head to manage the work, and is, therefore, deficient.

Statute Labor in Roxborough.

Evidence as to the disadvantages of statute labor arise from many sources. As an instance, we quote from a report of R. C. McGregor, Clerk of Roxborough Township:

"A few years since I took note of the first day our road division worked their statute labor, and the work for that day was graveling a certain part of the highway. The gravel had to be drawn about one mile by teams and waggons. A man with a team and waggon, plough or scraper, counts three days, which would be $3. The same year, in different parts of the township, parts of the roads were gravelled by parties drawing the gravel about the same distance, or a little over, at the rate of 65c per rod. When this day's work was ended, I with another man measured the portion gravelled that day. In making our calculation, we only allowed each man 50c and team with man $1.50. At that rate the portion made for that day came to $2.42 per rod. Hence more roads would be completed by selling the work, and each man to pay only 25c for every day assessed. By all means commutation would be more profitable, no matter how calculated."

SYSTEM BEING ADOPTED BY TOWNSHIPS.

The defects of statute labor are not being pointed out, and the system condemned without giving a better substitute. This substitute is not in the experimental stage. It has been tried, and its advantages proven by a hundred and more townships of the Province. It is not contended that this system can be adopted by a by-law of the township, and then left to itself to make and repair the roads. The best system that can be devised will prove a failure unless the councillors and people of the township try to make good use of it. This system, particularly until it is thoroughly established, will require the painstaking effort of the council and public-spirited men of the township to carry it into effect. It is particularly important that the road commissioner or commissioners appointed by the council shall be thoroughly capable and practical men, who can plan the work of improvement with a good understanding of the principles of roadmaking, can carry the work on methodically and with

good judgment, can conduct the purchasing and business portion of the office to the best advantage, and who can direct and manage the men employed.

The system recommended should be adapted in its details to local conditions, but the general features adopted are the following :

Statute labor is commuted at a fixed rate per day, and the amount is collected at the same time as the other taxes by the township tax collector ; or, if preferred, in place of commuting statute labor, a special rate on the township assessment may be levied for road purposes, thereby entirely doing away with the statute labor roll.

Money can be handled to very much better advantage than can the statute labor. The money can be expended at the most favorable time of the year, where it is most needed, and faithful work can be demanded of those earning it.

One road overseer or commissioner is appointed for the entire township, or, if desired, the township is divided into a convenient number of divisions for road purposes, usually two, three, or four, and a road commissioner is appointed over each. This practically amounts to a reduction of the number of pathmasters, and the enlarging of the road beats. It is essential to the success of the proposed system. To merely commute statute labor and retain the former number of pathmasters, giving each a small amount to spend, means a perpetuation of most of the defects of the statute labor system.

It is not best for councillors to act as road commissioners. Councillors, like the pathmasters of the old statute labor system, are elected annually, and cannot become experienced. There is a tendency for them to use their office not so much for the benefit of the roads as to gain votes for the next election. The ratepayers are apt to become dissatisfied unless councillors perform the duties of commissioner without remuneration. Councillors cannot be so independent as are road commissioners, and they cost the township fully as much in commissions, mileage fees, etc.

The duties of the road overseer are :

(a) To supervise all work and repairs done on the roads and bridges within his division.

(b) To acquaint himself with the best methods of constructing and maintaining good roads, and of operating graders and other road machinery used by the township.

(c) To employ, direct and discharge all men and teams, required to carry on the work, and to purchase necessary materials.

(d) To see that all washouts, drain and culvert obstructions, bridge failures, and other unforeseen defects are repaired or protected, with the least possible delay, so as to prevent further injury to the road, or accident to the users of the road, and to act promptly in all cases of emergency.

(e) To report to the council early in each year as to the work required the coming season, to carry out the instructions of the council with regard thereto, and to perform such other services as may be required of him from time to time, under the written instructions of council.

(f) To collect the poll tax in his division.

(g) To keep an accurate record of the men employed and the work done, and to furnish this written form to the reeve at proper intervals, in order that the reeve, upon being satisfied with the correctness of the statement, may issue cheques for the payment thereof.

(h) To stake out all works, and see that they are undertaken systematically, so that no time will be lost in taking men, teams and machinery from one part of the township to another.

(i) To supervise the performance of all work done by contract, and certify as to completion, acting as inspector for the township.

(j) To supervise the opening of snow roads under such regulations as, in the opinion of the council, the needs of the township may require.

(k) To report to the council at the close of each year, showing in detail the character, location, and cost of each separate work undertaken.

(l) Works, the cost of which will exceed a certain fixed amount (ordinarily from $10 to $20, as may be determined by the council) may be let by contract to the lowest satisfactory bidder, but in the event of any work being duly advertised to be let by contract, and the tenders being too high, in the opinion of the commissioner or the reeve, it should be the duty of the former to undertake the work by day labor under his own direction.

The commissioner should be retained in office as permanently as circumstances permit, in order that his experience, increasing from year to year, may enable him to do more perfect and economical work. Continuance in office should be the reward of good service. Independent, capable road overseers are needed.

The commissioner should have exclusive control and management of the maintenance, repair and improvement of all

SCHEDULE OF TOWNSHIPS IN WHICH STATUTE LABOR IS COMMUTED OR ABOLISHED.

Township.	County.	System as it affects Statute Labor.	Year change was made	No. of Road Divisions.	No. of Road Commissioners or Overseers.	Special Road or Commutation Rate.	Remarks.
Adelaide	Middlesex	Abolished	1904	....	....	.....	
Adjala	Simcoe	Wholly commuted	1904	6	6	60c. per day	
Adolphustown	Lennox	One-half "	1902	7	3	60c. "	
Ancaster	Wentworth	Wholly "	1898	23	23	50c. "	See page 18.
Assiginac	Manitoulin	" "	1904	3	....	75c. "	
Atwood	Rainy River	" "	1902	1	1	$1.00 "	
Barton	Wentworth	" "	1894	9	9	20c. "	See page 18.
Bastard	Leeds	Four divs. "	1898	....	....	50c. "	
Bayham	Elgin	Wholly "	1903	5	....	50c. "	Councillors act as commissioners.
Bedford	Frontenac	" "	....	62	62	$1.00 "	
Bertie	Welland	" "	1901	3	3	75c. "	See page 18.
Binbrook	Wentworth	" "	1896	19	19	50c. "	See page 18.
Blanshard	Perth	Abolished	1899	60	60	.....	
Blenheim	Oxford	11 divs. commuted	1898	....	....	50c. per day	
Burford	Brant	15 " "	1898	....	....	50c. "	
Carlow	Hastings	Wholly "	1901	5	5	60c. "	
Cavan	Durham	" "	1902	41	41	75c. "	page 18.
Clarence	Russell	.....	....	....	....	.....	
Clinton	Lincoln	Wholly commuted	1898	4	4	40c. per day	
Cobden	Algoma	" "	1903	1	1	$1.00 "	
Colchester N.	Essex	Abolished	1904	5	5	50c. "	See page 19.
Crosby, N.	Leeds	Two. divs. commuted	1898 1900	....	....	60c. "	
Darling	Lanark	Wholly "	....	24	24	$1.00 "	
Delaware	Middlesex	" "	1903	4	4	50c. "	
Derby	Grey	Abolished	1902	4	4	.....	See page 19.
Dorchester, N.	Middlesex	Wholly commuted	1900	22	....	40c. "	
Dorchester, S.	Elgin	" "	1902	....	....	.....	
Dover	Kent	" "	1904	....	....	50c. "	Commissioners to be appointed.
Downie	Perth	Abolished	1901-02	5	5	.....	See page 19.
Dumfries, S.	Brant	Wholly commuted	1901	5	5	75c. "	See page 19.
Dysart, *et al*	Haliburton	Abolished	1901	30	....	.....	
Eldon	Victoria	"	1904	4	1	.....	
Elizabethtown	Leeds	Wholly commuted	1902	10	10	75c. "	See page 19.
Enniskillen	Lambton	Five divs. "	1903	....	....	$1.00 "	
Eramosa	Wellington	Wholly "	1902	4	4	50c. "	See page 20.
Esquesing	Halton	" "	1904	....	....	.....	
Etobicoke	York	Partially "	....	....	....	$1.00 per day	See page 20.
Fitzroy	Carleton	Wholly "	1902	2	2	75c. "	
Flamboro, E.	Wentworth	" "	1903	4	1	50c. "	See page 20.
Flamboro, W.	"	" "	1902	3	3	50c. "	See page 20.
Fullarton	Perth	Abolished	1901	5	5	.....	See page 20.
Gloucester	Carleton	Wholly commuted	1901	5	2	50c. per day	See page 20.
Gordon	Manitoulin	" "	....	....	....	$1.00 "	
Gosfield, S.	Essex	Abolished	1902	4	4	.....	
Goulburn	Carleton	Wholly commuted	1901	4	2	60c. per day	See page 20.
Grimsby, N.	Lincoln	" "	1892	2	2	50c. "	See page 22.
Grimsby, S.	"	" "	1901	3	3	65c. "	See page 22.
Guelph	Wellington	Abolished	1902	1	1	.....	See page 22.

Hamilton	Northumberland	Wholly commuted	1903	5	5	10c. per day	See page 22.
Hawkesbury, E.	Prescott	Part "	1902	3	3	$1.00 "	See page 22.
Huntley	Carleton	Wholly "	1903	....	2	60c. "	See page 22.
Kaladar, Anglesea and Effingham	Lennox & Addington	Abolished	1903	1	2	50c. "	
Keewatin	Rainy River	Wholly commuted	1888	....	....	$1.00 "	
King	York	" "	1903	10	5	60c. "	See page 22.
Kingston	Frontenac	" "	1903	....	1	40c. "	
Kinloss	Bruce	Six div. commuted	1903	....	1	50c. "	One commissioner for commuted dist
Kitley	Leeds	One sub-div. "	1902	....	....	65c. "	See page 23.
Korah	Algoma District	Wholly commuted	1902	....	....	75c. "	
Lanark	Lanark	Six div. "	1901	....	....	75c. "	
Leeds and Landsdowne	Leeds	Wholly "	1901	5	5	75c. "	See page 23.
Logan	Perth	Abolished	1903	5	5		See page 23.
Louth	Lincoln	Half commuted	1895	20	20	50c. per day	
Madoc	Hastings	Wholly commuted	1904	....	....	75c. "	
Malden	Essex	Abolished	1890	4	....		See page 23.
March	Carleton	Wholly commuted	1903	4	4	50c. per day	See page 23.
Markham	York	" "	1904	9	9	75c. "	
Matilda	Dundas	" "	....	50	50	60c. "	
McIrvine	Rainy River District	95 per cent. "	1898	2	2	$1.00 "	
Medora and Wood	Muskoka	Wholly "	1902	11	11	$1.00 "	See page 23
Monaghan, N.	Peterboro	" "	1896	4	4	75c. "	
Monck	Muskoka District	" "	1901	4	4	75c. "	
Narrand Lorne	Algoma District	" "	....	3	3	$1.00 "	
Nelson	Halton	" "	1900	2	2	50c. "	See page 23.
Nepean	Carleton	" "	1904	....	....		
Niagara	Lincoln	Abolished	1903	12	12		See page 23.
Norwich, N	Oxford	Wholly commuted	1900	55	55	50c. per day	
Norwich, S.	Oxford	" "	1901	55	55	50c. "	See page 24.
Oliver	Thunder Bay District	" "	1902	2	2	$1.00 "	See page 24.
Orillia	Simcoe	" "	1900	6	6	50c. "	See page 24.
Osgoode	Carleton	Partially "	1902	5	5	50c. "	See page 24.
Otonabee	Seterboro	20 divs. "	1900	....	....	50c. "	See page 24.
Oxford, W.	Oxford	Wholly "	1902	2	2	50c. "	
Oxford, E.	Oxford	" "	1903	33	33	60c. "	
Paipoonge	Thunder Bay District	Never had stat. labor	...	...	1	50c. "	
Pelee Island	Essex	Wholly commuted	1899	1	1	50c. per day	See page 24.
Pelham	Welland	" "	1900	2	2	50c. "	See page 25.
Pickering	Ontario	" "	1900	21	21	60c. "	See page 25
Plummer Add'l	Algoma District	" "	1901	6	6	$1.00 "	See page 26.
Portland	Frontenac	" "	1903	97	....	10c. "	See page 26.
Prince	Algoma District	" "	....	10	10	$1.00 "	
Puslinch	Wellington	Wholly commuted	1903	1	1	50c. per day	See page 26
Rama	Ontario	" "	1903	5	5	75c. "	See page 26
Ratter and Dunnett	Nipissing	" "	....	24	24	$1.00 "	
Paxside	Algoma	" "	1904	....	....		
Reach	Ontario	" "	1903	15	15	60c. per day	See page 26.
Rochester	Essex	" "	1904	6	6	50c. "	
Russell	Russell	" "	....	....	....	....	
Salter and May	Algoma District	" "	1902	....	....	50c. per day	
Saltfleet	Wentworth	" "	1903	3	3	35c. "	See page 26.
Sandwich, E.	Essex	" "	....	5	5	$1.00 "	
Sarawak	Grey	" "	1896-1903	4	4	60c "	See page 26.
Scarboro	York	" "	1903	10	2	75c. "	$\frac{1}{4}$ of Statutary Schedule
Schreiber	Thunder Bay District	Partially "	1902	....	....	25c. "	
Sherborne	Haliburton	Wholly "	1904	1	1	75c "	
Shuniah	Thunder Bay District	Abandoned	1883	....	....	....	
Sidney	Hastings	Wholly commuted	1900	5	1	50c. per day	See page 26
Southwold	Elgin	" "	1904	....	....	75c "	

SCHEDULE OF TOWNSHIPS IN WHICH STATUTE LABOR IS COMMUTED OR ABOLISHED.—*Continued.*

Township.	County.	System as it affects Statute Labor.	Year change was made.	No. of Road Divisions.	No. of Road Commissioners or Overseers.	Special Road or Commutation Rate.	Remarks.
Stafford	Renfrew	Abolished					
Stamford	Welland	Commuted	1896	3	3	$2\frac{1}{2}$ mills on $1.00 assessment	See page 27.
St. Joseph	Algoma District	Wholly commuted	1902			50c. per day	See page 27.
Tarentorus	Algoma	" "	1903	3	3	75c. "	See page 26.
Tecumseh	Simcoe	Abolished	1903	4	4	$1.00 "	See page 27.
Tehkummah	Manitoulin District	Wholly commuted	1902	6	6		See page 27.
Thorah	Ontario	" "	1902	2	2	80c. "	See page 27.
Thorold	Welland	Nearly all "	1902		1	50c. "	See page 27
Tossorontio	Simcoe	Wholly "		73	73	75c. "	See page 27.
Tilbury, N.	Essex	1-5 of Tp "	1904			50c. "	
Toronto Gore	Peel	Abolished	1898				
Vaughan	York	Wholly commuted	1898			50c. "	
Walpole	Haldimand	" "	1903	2	2		See page 27.
Watt	Muskoka District	" "	1903	22	22	75c. "	See page 27.
Westminster	Middlesex	" "	1903	7	7	75c. "	See page 28.
Westmeath	Renfrew	" "	1902	7	7	$1.00 "	See page 28.
Whitby	Ontario	" "	1902	4	4	45c. "	See page 28.
Whitby, E	Ontario	" "	1900	2	2	75c. "	See page 28.
Whitchurch	York	Partly "		10	10	60c. "	
York	York	" "	1897	37	37	50c. "	See page 28.
Zorra, E	Oxford	Wholly commuted	1900			75c. "	See page 28.
		" "	1902	14	14	$1.00 "	See page 28.
				101	101	50c. "	See page 29.
							See page 29.

public roads and bridges within his division, in so far as the commutation and other moneys belonging or appropriated to his division will enable him to do so, subject always to such written instructions as he may receive from the council, or from the road and bridge committee of his division.

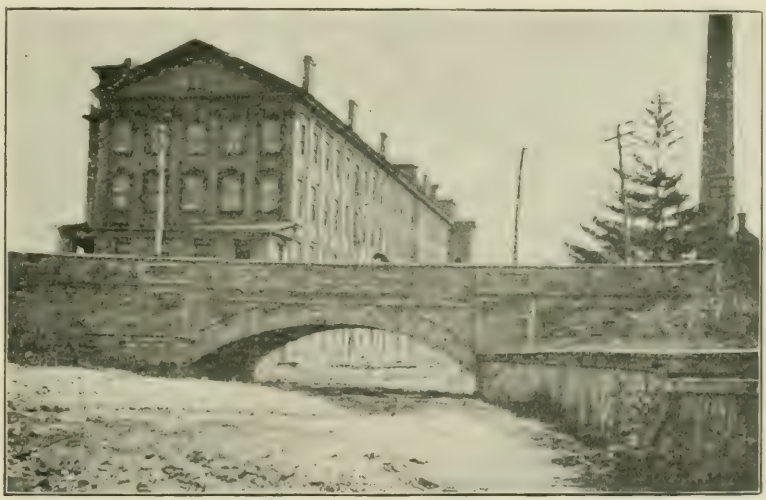
It is of the greatest importance that the commissioners should be men of good judgment, practical, with ability to direct labor to advantage. The selection of suitable men as commissioners is of the greatest importance, as upon them will largely depend the success of any system adopted.

Work is distributed throughout the different sections of each road division as evenly as possible, always endeavoring to make the roads permanent, giving preference in this respect to highways most used by the public.

not only to separate the work of the overseers, but also to assist in adjusting and distributing the expenditure. Any method which seems to unfairly concentrate expenditure on a few roads will meet with disapproval.

The council should constitute itself a "Road and Bridge Committee" to suit the road divisions, in order that the road overseers may consult the proper councillors as occasion arises, with regard to details of the work.

Work for the grading machine should be staked out in advance by the overseer, so that the several pieces can be taken up consecutively. Otherwise much time is lost in moving the machine from one part of the township to another. The grader should start work early in the spring, and be kept continuously in operation until the season's work is completed.



Stone Arch in Dundas.

A common objection raised by ratepayers when commutation is proposed is that they fear that the council will not distribute the expenditure equitably. Anything like favoritism in this respect will create dissatisfaction, and cause a desire to return to the old system. When the new system has become well established, when its benefits have become apparent, when the ratepayers have learned the advantage of doing permanent work, they will not then raise the same objection to a concentration of the expenditure, as each will know that, with the extension of permanent roads from year to year, his own turn will come in a substantial manner.

The division of the township is made

The usual road appropriation is made from the general funds of the township, this to be used for the purchase of tools, machinery and materials, for small jobs and contracts, for more permanent work on heavily travelled roads, providing gravel or broken stone, for doing special work on hills and cuttings, and the more general class of improvements that are of service to the township as a whole.

The residents of the township are employed to do the work, provided they come properly equipped, and will do a fair amount of work, preference being given to the ratepayers of the division in which the work is being done, in order that as many as so desire may have an op-

portunity to earn back the amount of their commuted statute labor.

Work is paid for in cash if desired, but preferably by cheque, where a bank is convenient, payment to be made in accordance with the pay roll submitted by the road overseer, accompanied by necessary vouchers, and such information as may be considered necessary.

A general plan for road improvement should be laid down by the council for the commissioner to follow.

This plan should specify the width to be graded, width and depth of road metal, character of drainage, etc., of all roads.

All roadmaking machines should be under the care and direction of the road commissioner.

The same men and teams should be hired, to operate the machinery, for the entire season and from year to year if possible, as they become proficient and do better work. This applies particularly to the operation of a road grader, stone crusher or roller.

The council or commissioner appoints foremen, in different parts of the township, to collect the necessary labor, and act promptly, when roads are blocked with snow, the men employed to be paid in cash by the council.

TOWNSHIP REPORTS.

Reports from the clerks of municipalities in the foregoing schedule, where new methods and systems are established, are as follows.

Ancaster.

The whole of the statute labor was commuted in the year 1898 at 50 cents a day. The township is divided into twenty-three road divisions, an overseer for each division. By the reduction of overseers, better roads, and the fact that every ratepayer contributes towards the keeping up of the roads, the change has been beneficial. Some members of the council advocate the reduction of overseers to two road commissioners on yearly salaries.

Barton.

The whole of statute labor is commuted, and has been since the year 1892. There are nine divisions, each under an overseer. The commutation rate is 20 cents. The change has been beneficial in every respect. Our people would not think of going back in the old ruts.

Bertie.

Statute labor has been commuted since 1901 at 75 cents per day. Originally there were two divisions, but later the township was divided into three divisions, with one commissioner over each. The change has been decidedly beneficial, in permanent work on the roads, and in compelling every ratepayer to bear his just portion of the cost of road improvement. It is proposed to appoint three or four pathmasters in each of the six polling sub-divisions, whose duties (under the commissioner) will be to keep roads open in winter, and attend to emergencies.

Binbrook.

Statute labor is commuted in this municipality at 50 cents per day. The change was made in 1896, and has remained so ever since. There are nineteen road divisions, and an overseer for each division. I think if it were not for the necessity of keeping roads open in winter, there would be a smaller number of overseers appointed—probably about half that number. I think the change has been very beneficial in that there is a more uniform system of doing the work, and in being able to place the work where it is most required. I am not aware that any change is proposed in our present system of road management as it now stands.

Cavan.

Statute labor was commuted in 1902, when the reeve and councillors acted as commissioners, appointing overseers in the respective wards allotted to them, and combining sometimes two or three of the old road divisions under one overseer, but this left too much for one overseer to look after in the winter time, consequently in 1903 they increased the overseers to 47. The township is now divided into 47 road divisions, and the reeve and the four councillors are commissioners, who in certain wards appoint overseers in the different road divisions. The commutation rate is seventy-five cents per day, giving parties the privilege, if the wish, to put in their statute labor as usual, giving them cheques for work done, which they present to the collector, who deducts it from their taxes. Statute labor is charged against the property the same as other taxes, with the said privilege of paying it in work on the road

divisions, where their property is situated. The change is beneficial in that the property is charged with the statute labor, and it has to be paid for or put in as already mentioned. For ten hours' work a man and a team is allowed $3.00, or 30 cents per hour, and a man is allowed $1.25 for ten hours' work, or 12 1-2 cents per hour. Overseers are allowed $1.50 for ten hours, or 15 cents per hour. More work is done and the roads are becoming better for traffic.

We have a grader, which works in different parts of the township where most needed, and a man is employed to run it, at $1.50 per day. Teams are paid $3.50 per day. We put in concrete culverts instead of the old wooden kind. We purchase cement and have a man employed to make them.

road and bridge account. The change has been beneficial, first, by it being the means of introducing a more uniform and systematic system in road-making, and, second, saving the waste of energy and money heretofore expended. Whilst there are a considerable number of chronic grumblers, yet, there has been no substantial proposition made for a change.

Downie.

Statute labor was abolished in toto in 1902. Commutation at 60 cents per day was tried for two years, but did not seem satisfactory. There are five road divisions, and each division is superintended by a councillor. As to benefit resulting, there is a difference of opinion. Some think the old statute labor is better than having the same abolish-

Taken in March. The side roads are axle deep with mud.

Colchester, North.

Last year statute labor was commuted at 50 cents per day, and the change seemed fairly good, but there was a feeling that the abolition of statute labor would be better, and at the beginning of the year a by-law was passed abolishing it, the roads and bridges to be kept in repair by a general rate. Last year the township was divided in five divisions, each member of the council taking charge of one. I do not know how it will be divided this year, but think it will be in much the same way.

Derby.

Statute labor was entirely abolished in 1902, pursuant to sub-section 6 of section 561 of the Municipal Act. The township is divided into four road divisions, with a member of council as commissioner for each—the reeve as commissioner for boundary roads or town lines. There is no commutation or special rate; all expenditure on roads being accounted for in the regular

ed. There is a great deal of selfishness. The fellow that has a gravel pit in his beat no doubt can keep that particular beat in better condition than by abolishing it, but the other fellow that lives three or four miles from a gravel pit certainly gets better roads by the new than the old system.

Dumfries, South.

At last nomination some wished to go back to the old system. On putting it to a vote of the meeting only two voted for the repeal of the by-law.

Elizabethtown.

This is a large township, 10 x 15 miles. There were 74 road divisions, a pathmaster for each division. In 1901 the council, by a by-law, allowed the pathmaster in each road division to use the statute labor to furnish and pile 12 cords of stone; after that was done, to work out the balance of statute labor in the division, and the township paid for crushing the twelve cords. That gave fairly good satisfaction, but

some wanted the whole commuted. In 1902 the whole statute labor was commuted at 50 cents per day, and the township divided into six road divisions, and a commissioner appointed for each at $2.00 per day. This did not satisfy the ratepayers, as the work was not equally divided. In 1903 a by-law was passed, making it 75 cents per day, and ten road divisions, with a commissioner for each. There are more complaints now than there ever was before. The commissioners' costs are considered to be taking too much of the money, and some of the roads are neglected altogether, and all ratepayers are dissatisfied. I am unable to state what the present council intends to do. We have a whole new council this year.

Eramosa.

Statute labor was commuted (at 50 cents per day) in 1902, with four road divisions. The rate-payers are quite satisfied with the change, so far as the commutation of statute labor, but the council have appointed themselves road commissioners, which is not satisfactory. There is a growing feeling in favor of appointing a qualified "road inspector," making the position permanent to a good man.

Etobicoke.

The statute labor on streets in villages and in thickly populated parts of the township is commuted—has been for some years. The council are adopting the system now of commuting any road division on which the statute labor has not been satisfactorily performed the previous year. In the farming districts we still retain the ordinary statute labor system. The commutation rate is one dollar per day on an amount of $500 and less, $1,200, 2 days; $2,100, 3 days, and so on.

Flamborough, East.

Our township if divided into four subdivisions. In 1900 the statue labor was commuted in division one, which is nearly altogether a garden district, and last December a by-law was passed commuting labor in the whole township. Division one has two overseers. The rest of the township is to be looked after by the council, divided into twelve road beats. Work is to be estimated and let by tender. The commutation rate is fifty cents per day. In division one the roads are in far better condition, and statue labor was commuted there at 55 cents per day until last year.

Flamborough, West.

Statute labor in this township is commuted. The change was made in 1902, and we have had two years under the new system. The township is divided into three road divisions. There are three road commissioners. The statute labor is commuted at 50 cents per day. The change has been beneficial. There is a more uniform style of road, and a better chance of fixing up bad places. Under the old system of road divisions, and statute labor, where the roads were bad the statute labor was scarce. No changes have been proposed, but we are trying to hunt information as to whether it would be better to have the management of all the roads under one commissioner.

Fullarton.

Statute labor was abolished in 1901. There are five road divisions, each under the supervision of a member of the council. A special rate of 1-2 mill on the dollar was levied in 1901; and 2 3-4 mills last year. We now get far more gravel put on, and it is put on where most needed. Formerly roads near a gravel pit got too much, and those far away too little.

Gloucester.

Statute labor was commuted in 1901 at 50 cents per day, and in 1902 and 1903 this rate was reduced to 35 cents a day. In 1901 there were five roads divisions, the councillors acting as commissioners. In 1902 two commissioners were appointed, and in 1903 one commissioner was appointed. The five divisions are still retained, and the old statute labor divisions are still used to base expenditures. The change has been better in every way—more work for less money—less patronage and less favoritism—owing to better machinery in general use. As the roads are graded, we look now to crown them with stone and gravel. We have been manufacturing our own tile for culverts for three years, and good results are beginning to show.

Goulburn.

Statute labor was commuted in this township in 1901. The township is divided into four divisions, and two road commissioners are appointed. The commutation rate is sixty cents per day, which will likely be increased—being rather little in comparison to price of labor. The change has been very beneficial—having got more work done, and done in a substantial manner, and likely

Bridge over R. Thames between Elgin and Middlesex.
Span, 240 feet; roadway, 16 feet; concrete abutments, steel superstructure, concrete floor.

to last a good while; also done a good deal cheaper than in statute labor times.

Grey.

The council intends to do away with statute labor, probably this year (1904).

Grimsby, South.

Statute labor was commuted in the Township of South Grimsby in the year 1901. Our township is divided into three road divisions, and one road commissioner is appointed for each division. The commutation rate is 65 cents per day. There is more labor expended on the roads, and to better advantage than under the old system.

Grimsby, North.

A by-law was passed on the 7th day of April, 1892, commuting statute labor in this township. There are two road divisions, one commissioner for each division. The commutation rate is 50 cents per day. Much more work of better quality is accomplished.

Guelph.

The council passed a by-law to abolish statute labor in the township in 1902. The township is divided into four divisions, and a councillor appointed commissioner in each division, with the Reeve to have a general oversight of the roads and bridges, the commissioner to confer with him as often as may be necessary. The change is thought to be beneficial, still from various causes it may not have been so successful as the advocates of the new system may have wished; the principal cause being the higher price paid for contracts than formerly, but the ratepayers do not appear that they should return to the old statute labor system. A road grader has been used in the township for four or five years, and now the council contemplate the purchase of a rock crusher.

Hamilton.

A by-law was passed in the month of March, 1903, commuting statute labor in the township of Hamilton. The number of road divisions remains the same (five), and the members of council are the road commissioners. The commutation rate is forty cents per day. A large majority of the ratepayers are satisfied that it is a move in the right direction. As it was before, some divisions did good work and others little or nothing. The change has been beneficial in other ways, but this being the first year there is room for improvement. There is some talk among the council of having two commissioners appointed, outside of the council, but no action has been taken as yet.

Hawkesbury, East.

On the 20th of March, 1902, the 4th and 5th concessions road, about 12 miles long, commuted statute labor. It is divided in three road divisions, east, centre and west divisions, and one road commissioner in every division. The commutation rate is $1.00 per day. The change has been very beneficial, and we have now a splendid road from here to Vankleek Hill, which is a distance of ten miles. We have bought an engine, a stone crusher, and a road grader to do this work. We are well satisfied with the improvement made in a couple of years.

Huntley.

Statute labor was abolished in Huntley Township in the year 1903. One road commissioner was appointed, and he appointed an assistant. The commutation rate is sixty cents per day. The change is considered beneficial.

King

A by-law was passed on the 28th day of February, 1903, commuting statute labor for the township of King. During the spring and summer months, more especially the spring months, great imaginary dissatisfaction prevailed, but as the year advanced and the ratepayers realized the situation, more favorable reports came in, and at nomination, when it was expected every conceivable fault would be found, not a word was said. True, all are not satisfied, and never will be. Even in this enlightened age some believe, and some do not. Our township is divided into ten polling subdivisions. The five members of council are the road commissioners, with two polling sub-divisions allotted to each, who in turn appoint as many overseers as the circumstances require. The commutation rate is 60 cents per day; some have thought it should have been 75 cents, and, in the near future, to lower the rate. As the change has taken place so lately, the question of benefit will be more easily answered later on. However, allow me to relate one instance: In one or two road divisions, under the old system, where for one or two years no statute labor was performed, said ratepapers had their commutation tax to pay this year with the rest of the township.

Kitley.

In polling sub-division No. 2, statute labor was commuted at 65 cents per day in the year 1902. The rest of the township remains as it was. The commuted section is about one-quarter of the township. There is one commissioner appointed for the commuted section, and there is an old county road running twelve miles through the township, which was given over to the township, and is now maintained by direct taxation. There is also one commissioner appointed for this road, and other township grants which may be given on other roads. They are building more miles of road, and better roads, in the commuted section than anywhere else in the township. No change is proposed, unless it would be commutation for the whole township, the same as it is in polling sub-division No. 2.

Leeds and Landsdowne Rear.

Statute labor was commuted in this township in the year 1901, and is giving very good satisfaction. The township is divided into five divisions, one commissioner in each of the divisions. Our council is of the opinion there are not enough commissioners, as labor is so scarce. The commutation rate is 75 cents per day. Our council is of the opinion that it is not enough, as the value of labor has been raised so much. The change has been beneficial by getting more work done, and a better class of work. The appointment of more commissioners is proposed, and of getting better machinery for road building.

Logan.

Statue labor was entirely abolished in the whole township in the year 1903. The township is divided into five road divisions, and five road commissioners were appointed. No commutation or special rate is charged for improvements on roadways; the same is paid out of the general fund of the township. The benefit comes in this way: In the eastern part of the township gravel is somewhat scarce, and not of good quality, consequently the people had not as good chance to improve the roadways, whereas in the western part there is more gravel and of a better quality, therefore, under the present system, the work will be more equalized and will be more systematically performed.

Malden.

Statute labor was abolished in 1890. Our council divide the township into four divisions for their own convenience, and look after all the road work. There is no patch-work; water is carried to its proper outlet; roads are gravelled by the mile; all work is done on a larger scale and in a more thorough manner, because it is done by practical workmen, and not by farmers and their sons.

March.

Statute labor is commuted at 50 cents a day, the change being made in 1903. There are four commissioners, and it is proposed to have the roads properly graded up as soon as possible, as the old style of road making by statute labor has played out. The council propose to buy a road grader, and hire teams to work by the day under a competent overseer, and have the roads properly graded up as soon as possible, so as to prepare for gravelling, as there are several gravel pits to be had in the municipality convenient to the leading roads.

Medora and Wood.

Statute labor is now abolished, the change being made in 1902. Ratepayers have the privilege of working on roads at rate of wages going—from $1.50 to $1.75 per day. Very few take advantage. In 1902 there were nine divisions in municipality, in 1903, eleven. The commutation rate is $1.00 per day. The change has been beneficial. Work is performed—which it often was not under the old system. The roads are improving.

Nelson.

Statute labor was commuted in the year 1900. The township is divided into two divisions, the Old Survey and the New Survey of Nelson. The commutation rate is 50 cents per day. I think the change has been beneficial. Road commissioners being continued from year to year, carry on the same system of road improvement.

Niagara.

Statute labor was abolished in 1903. One overseer or commissioner was appointed for 1903, but it is the intention of the council to appoint two commissioners for 1904. I believe, one for north and one for south end of township. Fifty cents per day was the rate for 1902, but in 1903 statute labor was abolished, and the amount required for roads and bridges was collected in the general tax of township. It has given the township better roads, and bridges are kept in better repair. It is proposed to take about four of the leading roads running north and south

in the township and complete them, and put them in good permanent shape, I believe.

Norwich, South.

The by-law to commute statute labor was passed in May, 1901, at fifty cents per day. There are fifty-five road divisions, and fifty-five road overseers are appointed. The commutation rate is fifty cents per day. The change has been beneficial when the parties take an interest in it. But when they seem to want to throw cold water on it (and I am glad to say in not many instances) it has not proven so beneficial. We have been running the statute labor in this way. We collect in the fall fifty cents per day for each day a ratepayer is assessed. I separate the road divisions, and upon ascertaining the amount due each division I send notice to the overseer, who warns the men on his beat that he will do a certain piece of work, and that he will pay a certain amount for a day with team, or a man with shovel, as the case may be. If the ratepayers in the division wish to do the work, he pays them for the amount they do. If not, he hires some man to do the job, and pays for it. When done he makes his return to me of how he has appropriated the money, draws it in lump sum up to the amount due the division, retaining $3 for his services. This worked very well for a couple of years, and you could see a marked improvement. In 1903 help was very scarce on the farms, consequently farmers would not turn out to do their statute labor, but would say they did not have to. As we had not made any provision for a case of this kind, some of the divisions did not get any done as there were not enough jobbers and contractors in the township to do all the work. It is proposed to run along this way for the present year, and I think next year will see the township divided in four or five sections, and a commissioner over each section, who will look after the work, and cost us no more than at present, paying fifty-five overseers $3 each, or a matter of $165, for no valuable return.

Oliver.

In 1902 a by-law was passed in this township abolishing statute labor and doing the work under commissioners. The ratepayers have the privilege of working in their statute labor, if they wish to do so, at $1.50 per day of ten hours. There are two divisions, and the commutation rate is $1.00 per day. It is generally admitted that the work is done better and in consequence better roads. Though the by-law was for two years, or until repealed, there is no word of repealing it.

Orillia.

All statute labor has been commuted since 1900. The township, or rather, townships (we have practically two), are divided into six divisions, and six road commissioners are appointed. The commutation rate is 50 cents per diem, on basis of statute labor scale as formerly in vogue in this township. The money raised in this way would equal two and three-tenths mills (2 3-10) on whole assessment. Much more permanent work is done, and more uniform as well. Our people are almost a unit in favor of the change from statute labor.

Osgoode.

Statute labor has been commuted in the seven eastern concessions since the year 1902. There are five divisions and five commissioners. The commutation rate is fifty cents per day. The change has been beneficial financially and an improvement to the roads. In commuted district comparatively little money is spent from general fund. No change yet proposed.

Otonabee.

In 1901 the statute labor of four road divisions was commuted at 50 cents per day, 13 in 1902 and 3 in 1903, making 20 in all. There are 64 divisions on which pathmasters are appointed and 26 commuted divisions. The commutation rate is 50 cents per day in commuted divisions, and in other divisions, if not paid to the pathmaster by parties not wishing to perform their statute labor. If not paid to the pathmaster at time of doing the work, then they are charged $1.00 per day. The money collected in commuted divisions and $1,800 collected in the township for the roads is nearly all overseen by one man, with an efficient gang, with grader and scraper. Said overseer has been in the employ of the township about five years. The result is the roads are greatly improved, much better work being done, and more uniform than under the old system.

Pelee.

On the 15th day of December, 1898, a by-law was provisionally adopted to abolish statute labor, nad establish a fee in lieu thereof (50 cents for each day's statue labor, as heretofore imposed). A vote on this by-law was taken at the municipal election, and carried by a large majority. The by-law went into effect the next year, 1899, and is in effect to-day and likely

to be for all time to come. The by-law also provided for the levy and collection of a special rate in a general way for special improvement or work on any road deemed necessary. Township is divided into 13 road divisions, these again divided into four groups, and a road commissioner (generally a member of the council) appointed for each group. The commutation rate is 50 cents per day, ratio of service according to section 102 Assessment Act, 1897. The change has certainly been beneficial, more being accomplished in the improvement of the roads since the abolition of statute labor than in the previous history of the township. The money is spent principally in making as much permanent road as possible, and not here a little and there a little. Principal roads receive first attention, and commissioners can start from a given point, when two may be continuing the improvement of same road. The work, where practicable, is sold by public sale, returns are more complete, and machinery and other implements on hand when wanted, etc.

A good road in Lanark.

Pelham.

In the year 1900 a by-law was passed commuting all statute labor at 50 cents per day upon the assessment as per assessment roll. The rule adopted provides half day on assessment up to $100. One day on assessment from $100 to $200. Two days on assessment from $200 to $300; and quarter-day on each additional $100 from $300 upwards. The township is divided into two divisions, with one overseer over each division. The commutation money is applied only for grading and general repair of roads. Building of bridges, purchase of sewer pipe and plank, is paid for out of general fund of township. Besides, a grant is made each year for permanent road. We believe more work has been done than under the old system, but the price per day for commutation should have been at least 75 cents. With 75 cents or $1 per day, we could have been able to make some permanent road each year, but 50 cents will not do it.

Pickering.

By-law re commutation passed March 12, 1900. There are twenty-one divisions, with a commissioner for each. Five of these are village divisions. To keep the roads open during the season for sleighing in the divisions other than village divisions, a couple of overseers are appointed for each division to assist commissioners in keeping roads open, each commissioner and overseer having different roads to look after. The commutation rate is 60 cents per day. Twenty-one commissioners with a fair knowledge or roadmaking are more easily secured than 119 overseers as under the old system. Commissioners are gaining additional experience with each year, and doing better work and more of it. By commutation all have to pay; under the old system some escaped the imposition, others only half did it. Ratepayers employed on the work are paid the current wages, and work as if employed by private individual. A better and more uniform system of roadmaking has resulted. No changes in our system of road management are proposed at present, but many favor an engineer being put in

charge of township, with commissioners or foreman, in the different road divisions; or, perhaps, large divisions, subject to his orders and directions.

Plummer Additional.

Statute labor was commuted in April, of 1901, throughout the whole township. Last year we had five road divisions and five road commissioners. This year we have six divisions. The commutation rate is $1.00 per day. The change has been beneficial, in that work is more systematic—better organization to see that work is done.

Portland.

In 1903 we commuted the whole, and the amount was expended by the council on the different roads. The commutation rate is 40 cents per day. The change has been beneficial. Those that did not perform any statute labor were made to pay. It is proposed to have the money laid out in each division where it belongs.

Puslinch.

The by-law commuting statute labor over the township came into force in 1903. The township is divided into four divisions, as nearly equal as may be, and a commissioner appointed over each division. The commutation rate is fifty cents. Some good work of a permanent nature has been effected. Labor being scarce and wages high, the commissioners were not able to complete their estimates. A majority of the ratepayers wish to give the new system a fair trial.

Rama.

All statute labor in our township of Rama was abolished last year, and the new system worked fairly well. Our township is divided into five school sections, and we appointed one road commissioner for each section. The commutation rate is fifty cents per day. But I have reason to say that it will probably be seventy-five cents for this year. At nomination our Reeve asked the question, and nearly all responded in favor of the new system.

Reach.

Statute labor was commuted all over the township in 1903 by by-law. I may say that, with the exception of two divisions, the change has met with general approval. The township is divided into 15 divisions, each division under a commissioner or overseer. Each councillor has absolute control of the divisions. The commutation rate is 60 cents per day, and is collected at the same time as the other taxes by the collector. The commuted statute labor amounted to $2,488 for 1903. Commissioners are paid fifteen cents per hour, while actually at work; teams, with waggon or implement furnished, 30 cents per hour; laborers, 12½ cents.

St. Joseph.

Statute labor was abolished in the township of St. Joseph in 1902. There are two road overseers, the township being divided into road divisions in 1903, but three road divisions in 1902, and three overseers. The commutation rate is 75 cents a day. It is beneficial, by being able to do the work where it is most needed, and the water carried away by drains instead of the patchwork done by our forty pathmasters.

Saltfleet.

We passed a by-law commuting our statute labor in the township of Saltfleet in May of 1898. We divided our township into three divisions, appointed an overseer for each division, and supplied each division with a road grader. Our commutation rate is 35 cents per day. I may say it is too low, and the consequence is it has to be supplemented out of general township funds. We consider the change has been a good one here in Saltfleet. Our roads have been put in a very much better condition and at much less cost to the people. The matter is being considered whether it would not be better to reduce the number of divisions to two instead of three, as at present. It is generally conceded in our township that our roads have received more real benefit, and are kept in a better condition under the present system, than they did with double the expenditure under the old system.

Sarawak.

Two wards was commuted about six years ago, and three wards two years past, and all the township last year, at 60 cents per day, and this new arrangement has come to stay. There are four divisions and one commissioner for each division. More work is done, it is better laid out, and consequently better roads.

Sidney.

Statute labor has been commuted throughout township since the year 1900. Same number of days as called for in by-law before commuted. One road surveyor acts for the whole town-

ship. The commutation rate is 50 cents per day. The change has been very beneficial. Better roads, and work done under supervision of experienced men. No changes are proposed—very satisfactory.

Stafford.

Statute labor was abolished in the year 1900. The township is divided into three road divisions, each division having a road commissioner. This plan would be very good but for the difficulty of getting good road commissioners. The road money is levied by a rate on the dollar of assessment, and amounts to about 70 cents per statute labor day. The roads are more uniform. Under the statute labor system each pathmaster had a different plan of roadmaking.

Stamford.

Statute labor is commuted in two of the four polling sub-divisions. The change was made in 1896. In parts of the other two divisions it is also commuted, but not all. When the majority of the ratepayers on any road division request it the township commuted their labor. One division for each polling division, one member of the council acting as a commissioner in a division, with an overseer appointed by the council acting under his directions. The commutation rate is fifty cents per day. The roads in that part of the township where commuted have improved, at less cost, more than 100 per cent.

Tarentorus.

Last year was our first as a separate municipality. We commuted the statute labor last year at $1.00 per day. We are divided into four divisions, and have one road commissioner in each. The change was found very satisfactory, considering that we were late in getting properly organized.

Tecumseth.

Statute labor abolished in year 1903. Township divided into six road divisions, and a road commissioner appointed in each division.

Tehkummah

Statute labor is commuted in the municipality of Tehkummah. In 1890 it was commuted at 60 cents a day, and commissioners and operators of road machines paid out of the general funds, but that did not work well, as people could not readily see how the work was done in that way. In 1903 the rate was 80 cents, and roadwork stood on its own basis. The township is divided into two road divisions, with a commissioner over each. Rate for 1903 was 80 cents a day, but I think a change will be made to raise it to $1.00. This system of roadmaking is a great benefit in several ways. Road work is all performed and done in the right time of year, better roads built, etc. Dividing each division is proposed, and placing a councillor over each, to inspect the roads and advise commissioners where work should be done.

Thorah.

Statute labor is commuted at 50 cents per day, the system being adopted in the year 1900. In the year 1902 there were two road commissioners appointed, and also 16 pathmasters. In 1903 one road commissioner and the same number of pathmasters as in 1902. There is considerable dissatisfaction owing to some of the old road beats not having as much money expended on them, nor so much work performed as under the old system. Those dissatisfied are now asking the council to go back to old system. I think under present system we have more uniform system of roadmaking and more permanent work.

Tilbury, North.

Statute labor was commuted for part of the township, on Lake St. Clair shore, the 16th of April, 1898—on the whole township 21st September, 1903, the rule being 50 cents a day. There are six road divisions under the supervision of six road commissioners. It has been beneficial for the first move, and that has led to the abolition in the whole township. The roads were in a better state of repair, with less money and trouble. We propose to buy two new roadmaking machines.

Toronto Gore.

The statute labor was totally abolished in the township in the spring of 1898. For commission work the township is divided into two divisions proper. Three of the councillors act as commissioners for the larger division, and the other two for the smaller. These are sub-divided into 20 divisions and overseers appointed in each. The duties of the overseer are to keep the roads open during the season of sleighing in each year and also to repair any sudden breach or giving way on the road. The original by-law specified 65 cents per day as special road rate, but at present the statute labor rate is not taken into consideration, but sufficient is levied

to keep the road in repair. The change is considered by the ratepayers of the township as a decided success. The roads are more uniform, and most of the work is done with road machine. There is a strong feeling for better roads, but the supply of gravel is about exhausted. At present the council are waiting to see what action will be taken by our county councillors with regard to the Government grant. That body seems to be rather slow in taking any action.

Vaughan.

Statute labor was commuted in Vaughan township on April 20th, 1903, for the whole township. The council did not ask for public feeling by a vote, but merely passed the by-law which gave considerable dissatisfaction at the time. The township is divided into twenty-two divisions, with an overseer appointed in each division, the five councillors acting as commissioners for the whole township. Labor is commuted at 75 cents per day. The council think that more work has been done under the new system, but quite a large percentage of the ratepayers are still opposed to the change. No changes are proposed at present, as the council have decided to give it a fair trial. I do not think, however, that Vaughan will go back to the old system.

Walpole.

The council in August last (1903) passed a by-law wholly commuting statute labor in this township. Recent municipal elections were fought on that issue, the old council winning out. There are seven divisions, with seven overseers. The commutation rate is 75 cents a day. The council purpose purchasing stone crusher and roller, and making a piece of stone road each year.

Watt.

Statute labor is commuted, the change being made in the year 1903, at $1.00 per day. Township is divided into seven road divisions, one overseer over each division. I think the change beneficial. The road work was all done in proper season, and our roads as a whole were never so good before. We have some kickers, but the majority of ratepayers are satisfied. No changes proposed, but it is possible there may be at our next meeting.

Westminster.

The change was made in 1902. There are four road divisions and four road commissioners. The commutation rate is forty-five cents per day. There are some complaints. In the first place, I think the rate is too low, and we have had two very bad wet seasons. There are a great many in our township who think it would be better to do away with it altogether, and raise the township rate. I know, myself, it would be more convenient for the commissioner.

Whitby.

Statute labor was commuted in 1900, the rate being 60 cents per day. Township is divided into two road divisions, one emergency commissioner for each division to oversee needed repairs, who also acts as commissioner, with one member of council in spending commutation money. On the whole, this is beneficial by providing longer stretches of good roads on the leading roads of township. It would be better still if one or two good commissioners had supervision of the whole work, as a sort of permanent officer, with a view to greater continuity of action.

Whitby, East.

Part of the statute labor is commuted in this township. Any road division can have statute labor commuted by petitioning the council to that effect, provided two-thirds of the ratepayers in the division sign the petition. The divisions are still left as laid out a number of years ago. The commutation rate is fifty cents per day. We get more work done for the money expended.

Whitchurch.

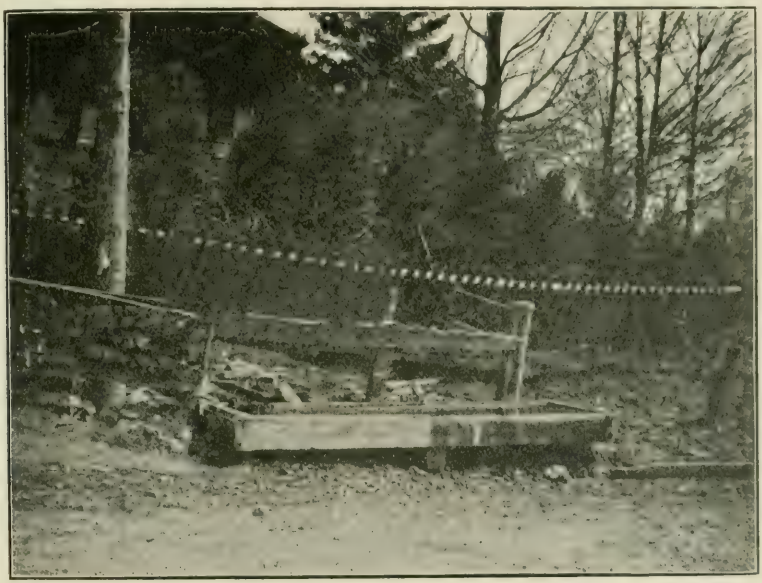
When Yonge street was taken over by the municipalities, Whitchurch commuted the statute labor rated on the farms that fronted on Yonge street. This was done because King Township Council decided to keep up their portion of Yonge street by money grants. Then there are some small village lots adjoining Stouffville, on the north, that commute their statute labor, and expend the amount improving their street. We have 74 road divisions yet. We engage a man to run the road plough for a time in May and June. The commutation rate is 75 cents per day of eight hours. A good many of those that have to pay along Yonge street are opposed to the scheme. The majority of the ratepayers are opposed to any change. In 1903 it was almost impossible to get men to do jobs on the roads.

York.

Statute labor has been entirely commuted for some years. The movement for commutation commenced a number of years ago by commuting the labor in a small section of the township, which spread from time to time until the whole township was included. The township is divided into 14 "Commuted Statute Labor Districts," all under the supervison of the township engineers, who have a foreman for each district. Commutation rate is $1.00 per day. The change has, I believe, been beneficial. It is claimed by the majority of the ratepayers that more work is accomplished under the present system than in the old pathmaster days, and that the work is more systematic, uniform, and of a more permanent nature than under the old system. The council is at present considering a proposition to place the supervision of the work under the members of the council as commissioners, assigning a certain district to each of the four councillors, only employing the engineers when required on special work.

Zorra, East.

Statute labor was partially commuted in 1898 to 1900—wholly since. The first scheme was to commute in road divisions where the majority was favorable. Road overseers were appointed as usual, and expended the commutation money, receiving 5 per cent. for their services. Then in 1901 it was all commuted, and in 1902 one commissioner was appointed for the whole township. In 1903 they went back to road overseers, 101 of them. Just now there are 101 road divisions, and the same number of commissioners or overseers. They are thinking of appointing five commissioners for this year, but will not know for some time yet. This is generally settled in March. The commutation rate is 50 cents per day, as per schedule enclosed. As to the change being beneficial, some say Yes, some No. As for myself, I favor four or five commissioners as being more economical, and securing better value for the money and more uniform roads. There is quite a feeling among the parties having small assessments to abolish statute labor altogether, and levy a general rate for road improvement.



A watering trough by the roadside.

STATUTE LABOR COMMUTATION BY-LAW.

Township of East Zorra.

A by-law to commute all statute labor in the said township, at a uniform rate of fifty cents (50 cents) per day, and to provide for expending the same and other moneys on the public highways.

Whereas the highways of this township have heretofore been maintained by statute labor, performed thereon under the direction of road overseers, supplemented by sufficient grants from general township funds, expended by the members of the municipal council, to meet all the expenditures connected therewith, and;

Whereas it is desirable that all statute labor in the said township should in future be commuted at the aforesaid rate, and the funds raised by such commutation, together with other funds which may be granted by the council of the township, should be expended by a commissioner or commissioners, to be appointed yearly by the said council.

Be it, therefore, enacted by the Municipal Council of the Corporation of the said Township of East Zorra, and it is hereby enacted :

1st. That from and after the date of the passing of this by-law, all statute labor to which any person (resident or non-resident), may be liable, in this municipality, shall be commuted at the fixed rate of fifty cents (50 cents), for each day's labor,, and the amount of each person's commutation tax shall be added in a separate column, opposite such person's name in the collector's roll, and shall be collected and accounted for like other taxes, and shall be kept by the treasurer in a separate account, to be known as "The Commuted Statute Labor Account."

2nd. That the said commutations shall be levied on each assessment according to the following schedule, viz.. Not more than $900.00, the sum of $1.00; at more than $900.00, but not more than $1,000.00, the sum of $1.50; at more than $1,500.00, but not more than $2,100.00, the sum of $2.00; at more than $2,100.00, but not more than $2,700.00, the sum of $2.50; and for every $900.00 of assessment over $2,-700.00, or fractional part thereof over $500.00, an additional sum of fifty cents (50 cents).

3rd. Every male inhabitant of this township, between the ages of 21 and 60 years (not otherwise assessed, and not exempt from the performance of statute labor) shall pay the sum of fifty cents (50 cents) as commutation for one day's labor, the same to be paid over to the commissioner, or one of them if more than one be appointed, within six days of being notified so to pay, and if he refuses or neglects to do so he shall incur the penalty prescribed by the Assessment Act of the Province of Ontario.

4th. That the sub-division of the public highways in this township into road divisions, as at present, is hereby abolished, but the commissioner or commissioners, in expending the commutation moneys shall see that a sum as nearly equal as may be to that formerly expended in statute labor in each division shall continue to be so expended.

5th. That the council should yearly appoint one or more competent persons as commissioners to oversee the construction and repair of the highways, bridges and culverts, in and bordering on the municipality, and such commissioner or commissioners shall be governed by by-law and direction of the council, and shall hold such office during the pleasure of the council, and at such remuneration as may be fixed by the said council, or mutually agreed upon.

6th. That the clerk of the said municipality shall as soon as possible after the holding of the last Court of Revision in each year, notify the commissioner or commissioners of the probable amount of commutation money to be expended in each division.

7th. That the council shall notify the said commissioner or commissioners where to procure gravel, lumber, tile, culvert pipe, or other material to be used, and shall provide for his or their use all necessary books, pay sheets, notices, etc., required for the proper performance of his or their duties.

8th. That the said commissioner or commissioners are hereby authorized and empowered to collect the sum of fifty cents (50 cents) each from the persons mentioned in section No. 3 of this by-law, and to expend the same.

9th. That the said commissioner or commissioners are hereby appointed as inspectors under the provisions of By-law No. 496 of this municipality, and of the Act to Prevent the Spreading of Noxious Weeds, with full power to prosecute any party or parties violating the same.

10th. That the council may at any

regular meeting set apart such further sums of money as may seem required for the maintenance of the highways, and the commissioner or commissioners shall expend the same, as directed by resolution of the said council.

11th. That the treasurer of the municipality is hereby authorized to pay on the order of said commissioner or commissioners any sums which he may be directed so to pay by resolution of the council.

12th. That by-law No. 518 of this township and any other by-law, or parts of by-laws, contrary to, or inconsistent with the provisions of this by-law, are hereby repealed.

Read a first and second time on the 17th day of March, A.D. 1902.

Read a third time and finally passed in open council this 25th day of March, A.D. 1902.

JAMES ANDERSON,
Clerk.

WM. STOCK,
Reeve.

COUNTY ROADS.

Road systems extending over a considerable area, comprising the more heavily traveled market roads, and maintained in accordance with a good standard, have been adopted as county systems, largely under the influence of the Highway Improvement Act of 1901. Counties establishing these systems are: Wentworth, Simcoe, Lanark, and Wellington. The Hastings system will be brought under the Act, while Carleton, Oxford and others are taking steps towards this end. Municipalities are notably conservative with respect to systems of road management. The statute labor system has remained almost unchanged for more than a century, in spite of its many defects and the manifest advantages that would arise by adopting more suitable township systems. It was anticipated that county systems would be adopted very slowly, and it is a matter of much promise that such counties as Wellington, Wentworth, Lanark, Simcoe, Hastings, Oxford, and others should receive the proposal so favorably.

The Act does not contemplate an extensive system of roads. The aim is rather to secure uniform and systematic work, to employ and properly operate modern and economical implements, to provide careful, constant, and methodical supervision and maintenance; to provide object lessons in the care and treatment of roads, and set examples for those having charge of the remainder. Where a county system is adopted, no greater road mileage is maintained by the ratepayers. Whatever mileage is assumed by the county council merely relieves the township council to that extent. As a rule to combine the more important roads in one class under one management, with proper methods and tools for dealing with this special class of work, is a measure that will reduce the cost rather than increase it, and it will at the same time produce a better class of roads.

A large expenditure is not demanded from the municipalities taking advantage of the Act. The intention is to do the greatest amount of good by aiding the counties to help themselves. All the expenditure placed on roads will be spent in the county, and this returned, in a great measure, to those who contributed in the first place, together with the Provincial grant.

Country roads are, for the most part, those benefited by the Act, and it is a means of requiring the urban municipalities to aid in the maintenance of the common highway, from which they derive a great benefit, without heretofore sharing in the cost. As an illustration, the City of Toronto, containing about one-tenth of the population and wealth of the Province, would ordinarily be entitled to one-tenth of the $1,000,000, or $100,000. None of this grant, however, is spent within the limits of Toronto, but all is spent on the roads of rural or township municipalities.

A County Convention.

Wherever it has been proposed to form a system of county roads, and thereby secure the county's share of the $1,000,000 grant set apart by the Legislature, it has been customary for the county council to call a conference of all municipal councils, or their representatives, within the county. At these conferences, the majority of which have been, by the request of the counties, attended by the Commissioner of Highways, the meaning and intention of the Act have been explained, and to some extent a plan of roads considered. A second conference has then been called to further discuss the details of the proposal before any well-defined plan has been reached. When this has been done, it rests with the county council to pass a by-law definitely laying down a system of county roads. A copy of this is sent to each township council within the county, and they have three months in which to consider it. Each council will, within the three months, report to the county council their acceptance of the plan, their rejection of it as a whole, or such alterations in the system of roads as would meet their approval. If a township wishes roads taken other than those proposed by the county, in case of failure to agree, the matter will be submitted to arbitration. If more than a third of the municipalities oppose the by-law as a whole, the question must be submitted to a vote of the people. If the by-law meets the acceptance of the municipal councils, or two-thirds of them, the county council may, at the end of three months, proceed to perfect their plans for the improvement of the roads. Under the Act as it now stands, county councils have until January 1st, 1906, during which to take advantage of the Act.

The Councils Decide.

The highways to be assumed as county roads, the distribution of the expenditure upon these roads, where the work is to be undertaken, and similar details of management, are left wholly to the judgment of the county council and the municipalities interested. The actual improvements may be placed wherever they will be most serviceable and effective in bettering the condition of the roads, and the distribution of the expenditure must, therefore, be governed by local circumstances. What has been done would indicate that the county system of roads has been made to comprise about one-tenth of the road mileage within the county, but these have been selected wholly with a view to local markets and the trend of travel.

It will be of advantage in most cases to have the roads connect and form a continuous system of county roads, but it is not necessary that they should do so. In some counties the trend of travel is all in one direction, leading to one market centre. In other counties the trend of travel is divided into a number of district centres. Nor is the trend of travel marked by county or township boundaries, but divided according to local conditions. The most important factor in determining the line of travel is, as a rule, the nearest or best market. These circumstances must be all taken into consideration in framing a county system or roads, and the aim should not be so much a connected system as a useful one. A reference to the maps of county systems elsewhere in this report, will indicate what Lanark, Wentworth, and Wellington have done in this respect.

The Amount Expended.

The amount of money a council shall spend on the roads is not defined by the Act, except that, in case money is raised by the issue of debentures, these debentures shall not exceed two per cent. of the equalized assessment of the county.

This money, payable by the Government, may be drawn as the work progresses, and the rapidity with which it is drawn will depend upon the expenditure the county decides to make. It may be drawn in one year if a sufficient amount of work is done by the county. Or the work may be extended over several years, and the proper proportion of the money due under the Act will be paid from year to year as earned.

The Roads Assumed.

The roads to be assumed must not be confused with any previous county systems which have existed, many of these having become of secondary importance, owing to the building of railways and the growth of new local markets. Only those roads should be selected which can make good their claim to being still the roads of greatest travel. This is a matter which county councils, with the advice of township councils, will undoubtedly view from a county standpoint, and by them the best possible selection will be made, so that it is not a matter upon which the Act places any restriction.

The roads to be assumed under a county system should, however, be

those which are most used by the public, and which will best serve the requirements of the people in each section. One road in each township, or several roads, or part of one road, or parts of several roads, may be selected. As a general thing, they should consist of what are now the most heavily travelled roads in each township leading to the market town or village of the district.

Statute Labor.

Statute labor assessed against the lands fronting on the improved roads may be commuted by the township council in which the lands are situated, if the council so desires. The property adjacent to the improved roads will undoubtedly derive a direct benefit which should render it liable to such a measure. The commutation money will belong to the township, to be used as the council may direct. A natural step would be to use it in improving other roads in the township, while some townships propose using it in paying the rate levied against the township for county roads.

Grants to Townships Not Benefitted.

Most counties, and the councils of the various municipalities, agree as to the general principles of a county road system and the benefits that arise therefrom. But certain details in adjusting a system to meet the local circumstances in a few cases appear to create the chief difficulty in the acceptance of a county system of roads. To meet such cases, the Act provides that the county council may make a specific or annual payment to township councils not benefited by the proposed county road system, to reimburse them, wholly or in part, for the amount they pay annually to the county road fund. The county council may also make grants to towns and villages in certain instances.

Reasons for County Road System.

County maintenance of roads aided under this Act will, it is believed, be most satisfactory. Were township councils to maintain these roads and all other roads in the township, they would be influenced after the first expenditure to make future municipal expenditures on other roads, and those which have received Government aid will be neglected. Under such circumstances the first outlay would not accomplish its chief mission.

County councils, on the other hand, would have charge of these few leading roads only, all of the one class, so that the most economical but efficient system of maintenance could be adopted with respect to them.

Under a county system, an experienced and properly qualified man will be employed to have constant supervision of the work, and a well organized corps of men can be employed to work on the roads, building and keeping them in repair. As with other employments, they become experienced and do better work, and in the matter of repairs are ready to make them as soon as signs of wear appear.

Under county control, modern machinery, too expensive for individual townships, can be purchased and handled to advantage, an experienced operator can be employed for each implement, and a better and more uniform class of work will be secured.

A greater cost to the individual citizen need not be feared, as no greater road mileage is to be maintained. The effect of a county system is merely to group the most heavily-travelled roads under one management, where they can be most economically maintained.

By a county plan, uniformity of work and system will be immediately secured throughout the various municipalities. Under township control it is by no means likely that the various townships would act in unison; at best there must be delay, while here and there a township will not take advantage of the Act.

Under a county system towns and villages in the county contribute a fair share of the cost of keeping up the leading roads. There can be no question as to the justice of requiring the towns and villages to contribute towards the cost of this work. Towns and villages are benefited by the improvement of the country roads approaching them, and the county should not hesitate to assess them. This can be done through the county council only. It is not the intention that the money should be spent in the towns, but that it should be spent in the townships. Where the county has to raise two-thirds of the total amount, such a percentage of this will be contributed by the town as to make their contribution, together with the Government grant, equal to about one-half of the cost of the work. Where the townships, instead of the county, take advantage of the Act, towns and villages cannot contribute in this way. Under a county system, a portion of the cost of road-building is levied, in the county rate, against the towns and villages

within the municipality for road purposes. At the present time under township systems, the farmers bear the entire cost.

The total assessment of the townships of the Province is $458,811,926, and of the towns and villages, $129,771,310, the latter being 22 per cent. of the combined assessment of towns, villages, and townships. Thus, under the average county system, the towns and villages would pay 22 per cent. of the amount raised by municipalities for construction and maintenance; whereas under the township system the township cannot obtain this assistance.

Taking the Province as a whole under the county system, for every $1.50 spent on constructing the roads, the Province pays 50 cents, the townships 78 cents, the towns and villages 22 cents. Where the townships individually take advantage of the Act, the Province pays 50 cents and the townships $1.00.

It is impossible under a township organization, in the case of heavily-travelled roads, to levy the necessary taxation equitably, or employ the most economical and at the same time serviceable system. The trend of opinion has turned towards collecting the most important roads of each county, placing them under the management of the county council. By such means, road-making can be placed on a more businesslike basis, and, consequently, greater efficiency is secured. It provides for a more equitable system of levying the cost, for a better use of modern machinery, and for a higher grade of oversight and workmanship. At the present time township councils are unable to maintain the roads by statute labor, and are in consequence compelled to make annual appropriations of money from the general tax. This money, in the main, is spent on the roads which would comprise a county system, but owing to the contracted character of the township system, township councils cannot expect to apply this expenditure to the greatest advantage.

Standard Required.

Expensive work is not required. The nature of improvement undertaken by any county must necessarily depend on many local circumstances—the work already done on the roads, the road material available, the extent of traffic, and similar details. A fixed standard of road to be constructed is not defined by the Act, nor will it be controlled by the Department of Public Works.

It will be necessary for the county councils to submit a report showing what is proposed, but so long as it embodies the elementary principles, proper drainage, crowning, and, as far as possible, uniform grading, and a systematic application of material, it will meet requirements.

Special provision is not being made for Government inspection. The certificate of the county commissioner or engineer as to the completion of the work, the manner of doing the work, and expenditure of money, will be accepted. It is desired that the services of the Public Works Department in this respect will be advisory rather than that of inspection. Any consultation or assistance of this nature rendered by the Department will be without expense to the municipalities.

The regulations referred to in section 6 of the Act are, therefore, very general, and are the following :

All road improvement under the provisions of 1 Edward VII., Chapter 32, is to be done by a capable commissioner appointed by the council.

A plan of the roads to be improved, a report as to their present condition, and approximate amount of travel over them, specifications showing what work of improvement is to be made, together with an estimate of the cost, will be submitted to the Department of Public Works for approval. The improvements must be of a character suited to the requirements of the locality, and may consist of: (a) Resurfacing and substantial repairs on old gravel or stone roads; (b) Draining and grading the roads; (c) Draining, grading and gravelling the roads; (d) Draining, grading and metalling the roads with broken stone. The plans and specifications shall, as far as practicable, provide as follows :

1. The steepness of hills should not exceed a rise of one foot in twelve.

2. The roadway graded for traffic should be in the centre of the road allowance, and should have a uniform width of 24 feet between the inside edges of the open ditches. The width of the roadway on cuts and fills should not be less than eighteen feet.

3. Side slopes in cuts and fills should be one and one-half feet horizontal to one foot vertical.

4. The crown given the newly finished roadway should be uniform, and have a rise of one inch to the foot from the edge of the ditch to the centre of the road.

5. When gravel or broken stone is used, it should be placed to a width and depth sufficient to form a serviceable road, having due regard to the character and extent of the traffic.

6. The gravel or broken stone used on the road should preferably be obtained in the vicinity of the road, but must be of good quality.

7. As a rule the gravel or stone should not be of a less width than eight feet, nor of a less depth in the centre than nine inches.

8. Where roads have heretofore had gravel or broken stone placed on them, they should be repaired by cutting off shoulders, shaping with a grader, and adding a sufficient amount of gravel or broken stone to fill ruts, depressions, properly crown and make a road sufficiently strong to accommodate the travel.

9. The gravel or broken stone placed on any road should be thoroughly rolled, otherwise the grade should be maintained by careful raking or scraping until compacted by traffic.

10. An open drain should be made at each side of the road, and given a sufficient fall to a free outlet.

11. Durable sluices and culverts should be built when necessary.

12. Tile underdrains should be laid, so as to carry away excessive sub-soil water, lower the water-line, and secure a dry roadbed wherever a moist, damp, or springy condition of the sub-soil exists.

13. Modern machinery and implements should be used, as far as possible, to secure the greatest results from the expenditure, and to provide the best work.

14. Where, owing to special local conditions, any departure from the foregoing regulations may be desired, upon application of the council, an examination of the road or roads in question will be made, free of charge, by an engineer of the Public Works Department for the purpose of deciding upon a suitable plan.

WENTWORTH COUNTY ROADS.

Report by Edward Kenrick, Warden.

When Wentworth County proposed, under the inducement of Government aid, to formulate their scheme for an improved system of county roads, the conditions were in some respects favorable to the undertaking. The City of Hamilton, as the county market town, formed a common centre, towards which radiated, as spokes to the hub of a wheel, some 38 miles of well-travelled macadam roads. Here was a starting point, and the fact that all these roads were then in the hands of toll road companies, indicated the necessity for ascertaining the expense of releasing them from tolls, as the first order of proceedings. Also in Wentworth, the county road movement was no novel experience, the county already having at this time about 38 miles of county roads. Of this mileage of roads, 25 miles, after having been toll roads for many years, had but recently been made free, whilst only so lately as within the last five years the county had been put to the expense of nearly $30,000 in acquiring and partly constructing the remaining 13 miles.

These county roads, under the management of the county council, had supplied much useful information, both as to the cost of constructing new roads, and as to, what was of equally great importance, the cost of maintaining them, when constructed, in proper condition of repair. Reasonable facilities for furnishing the requisite material for the construction and repair of roads offered no serious obstacles to the inception of the scheme, although it is now conceded that an underestimate was at that time made as to the cost of construction of the proposed new roads. Stone of fair quality for macadam purposes was reported to be readily available for the roads proposed to be constructed, more particularly in the North Riding, whilst for the roads in the southerly districts the extreme length of the longest haul was estimated not to exceed eight or ten miles.

There being no wide streams nor apparent need for extensive engineering works within the county, provision was not seemingly required for any special outlay on these accounts, yet Wentworth's first year's experience was—the unexpected, which always happens—the threatened speedy collapse of the only trestle work bridge in the county, which necessitated its immediate replacement with a permanent structure, involving an outlay of over $4,000.

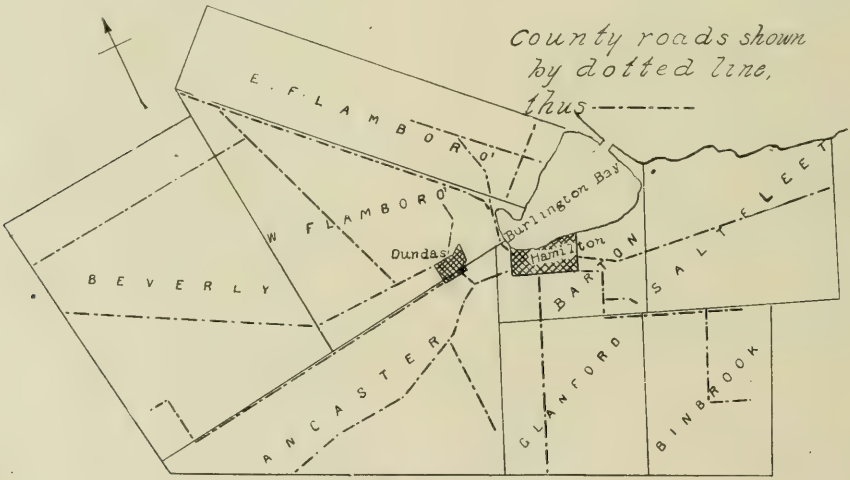
Under such apparently favoring conditions, seven commissioners, representing six county divisions, were appointed by the Wentworth Council to take the county road matter in hand, and it should be stated, by way of encouragement to those who may hereafter be called upon to undergo a similar experience, that they achieved final success, only after having oftentimes, during the 18 months which intervened before the matter was submitted to the ratepayers, been almost driven to despair by the many difficulties with which they were from time to time confronted

in the attempt to reconcile the various conflicting interests of their several districts.

It might also here be mentioned that the County Commissioners, in working out the details of their scheme and in estimating the proportion of expense, which each municipality would be called upon to contribute, took into careful account not only the benefits which the proposed purchase or construction of each road would confer upon the particular municipality within which such road would be situate, but the benefits also which the purchase or construction of such road might be reasonably expected to confer upon all other municipalities in the district.

The following are instances of difficulties of equalization, which the commissioners were required to take into account, when endeavoring to allot to each of the several local municipalities its fair proportion of improved road mileage and expense: Of the 38 miles of existing county roads, 27 were situate in the North Riding; two townships, also in the North Riding, had unquestionably received the almost exclusive benefit of at least $25,000 out of the $30,000 recently expended on county roads. In one township in the North Riding, the leading roads, including one road, running its whole length of 14 miles from north to south, were at this time already county roads. It was a moral impossibility that municipalities, situate like the above, should in the proposed distribution receive their full equivalent of county favors. It, therefore, redounds greatly to their credit that when the vote was taken the ratepoyers of these municipalities with a liberal consciousness of favors already received, gave handsome majorities in favor of the scheme. In two county districts local municipalities had a few years previously purchased from the Government some 15 miles of macadam roads, which they had since kept in repair. In these cases it was considered reasonable, and provision was made in the scheme to allow compensation ($6,500 being appropriated for this purpose) to these municipalities when inviting them to contribute their further quota to the general scheme.

Many and varied were the objections to the scheme, which seemed serious enough at the time, but which, viewed in the light of after experience, lost much of their weight. For instance, from the noticeably large increase in the public travel on the Wentworth roads,



Wentworth County Roads.

shortly after they were taken over by the county, it is fair to assume that a large and increasing percentage of ratepayers has discovered the convenience of making constant use of them, and that the objection, based on the alleged injustice to many called upon to pay increased taxation on this account, and yet living so far distant from county roads as to derive no benefit from them, was without any very solid foundation. In process of time a readjustment of the assessed values of property, as affected by its more or less favorable location in regard to these roads, will no doubt remedy any serious injustice of this nature. The argument in favor of toll roads, that the user should pay to keep them in repair, would have been far more difficult to combat, if the intention had been to saddle the local municipalities with their maintenance.

These roads, as located in Wentworth, carry the traffic not belonging only to the municipalities through which they run, but from all the country around as well. Their maintenance by the county is an equitable distribution of the expenditure required to keep them in repair.

What trade protectionists would probably term a species of jug-handled free trade in roads, is the admittedly objectionable position which a county situate like Wentworth is compelled to assume, when, having adopted a system of county roads, it is compelled to maintain them at its sole expense for the joint benefit of itself and adjoining counties, which show no disposition to offer reciprocal advantages. In reference to road improvements between adjoining counties, it has been suggested that Legislative provision be made to encourage joint action, and for a readjustment of Government grants, in such manner that the grant or part of the grant apportioned to any county which declines to take advantage of it may be distributed amongst adjoining counties to the extent of the benefits which the county having no county system may have derived from county systems of roads, where such have been adopted by adjoining counties.

The county system of roads, as finally approved by the ratepayers of Wentworth, the vote having been taken in the month of November, 1902, included the 38 miles of roads already held by the county, and made provision for (1) the purchase of the 29 miles of toll roads above mentioned for $63,104 (the prices of the several roads having been previously settled by arbitration), for (2) the assumption by the county, and the construction of 62 miles of new roads, at an estimated cost of $48,350, and (3) for the payment of the amount of $6,550 to certain local municipalities, to compensate them for the roads previously purchased by them from the Government, the aggregate amount required for the scheme being $118,000, including $20,000, the estimated amount of the Government grant. Upon the election of the council of 1903 the necessary proceedings were initiated for carrying into effect the proposed new system of county roads. Whilst the several roads were being taken over and duly named and numbered, and their limits regularly defined, as a preliminary provision for their supervision, the county was divided into six road divisions, corresponding as nearly as possible with the existing county divisions, with the representatives of each division as local commissioners.

Following this, at a special meeting of the council held in the month of April, by-laws were introduced defining the duties of a county road superintendent, and appointing to the office, at a salary of $800 per annum, the gentleman under whose charge, subject to the supervision of the council, as a roads and bridges committee, the whole work of constructing and repairing the Wentworth system of county roads has since been carried on.

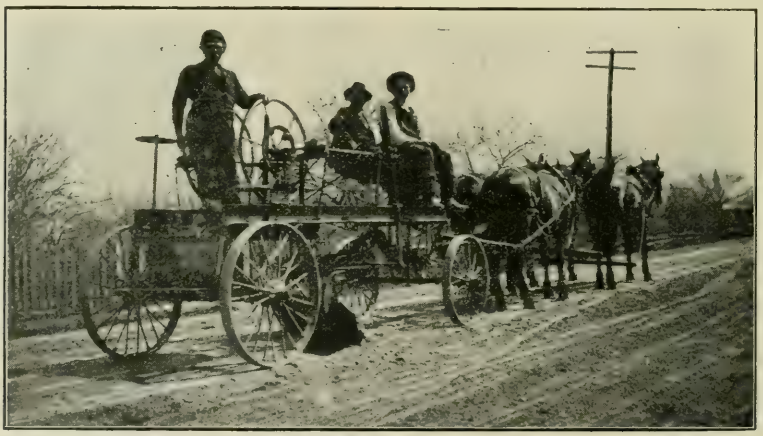
The by-law defining the duties of the county superintendent, briefly epitomized, makes provision for a general supervision by him of all roads and bridges, with power to engage men and machinery for all necessary purposes; for the appointment by him of two or more section men for each road; for making, in concert with the local commissioners, an estimate of the amount recommended to be expended during the year for the maintenance of each road; for his carrying out such work within the limits of the appropriations; for keeping the necessary accounts of all work done, and for submitting them for inspection, with accompanying vouchers; for the payment by him of employees and for supplies, but when exceeding a certain amount, upon order of the Warden or Chairman of the Roads and Bridges Committee; for controlling all road machinery and implements, and for furnishing security for the due performance of his duties.

The county superintendent appointed by Wentworth is not a professional engineer, but he is a man of some practical experience in quarrying and contract work, etc., and has served as township reeve. He has proved himself a capable official, and has given excellent satisfaction under the trying circumstances of starting an almost new undertaking. The council granted him a bonus at the December session, in recognition of his services.

It has been claimed as an objection to the substitution of one road superintendent for the system formerly adopted by having three councillors, as commissioners of each county road, that the members of the council are now unable to keep in sufficiently close touch with the road work in progress, and that to allow the superintendent (although it is true that he is nominally under the supervision of the Roads and Bridges Committee) the same authority for hiring men and teams and for purchasing supplies as was formerly possessed by the county road commissioners, is shifting too great a responsibility upon him from the shoulders of the council, where it should more properly rest.

It is probable that, to meet these objections, two safeguards, which have already been suggested, will be adopted in the coming year, viz., a monthly audit of the road accounts by the county auditors and the appointment of two members of the Roads and Bridges Committee, one for the north and the other for the south, to act as inspectors of work in progress, and to act in concert with the superintendent in the purchasing of supplies and the letting of minor contracts.

Whilst not fully satisfactory in every particular, Wentworth's experience has clearly illustrated the wisdom of exchanging divided for single management. Roadmaking is a science, and experience, the only school in which proficiency can be acquired, and although in the multitude of councillors there is wisdom, it is yet a speedier process and



Scraping macadamized roads of Wentworth in early spring.

less expensive to educate one road superintendent, who proposes to make roadmaking his profession, and devote his whole time to the work, than many councillors, who at best are only amateurs at the business and give it but a divided attention. Again, friction always signifies loss of power. With one driving wheel always drawing in one direction, the machinery of management runs smoothly, whilst with many driving wheels, even though of greater capacity, yet by reason of their drawing in many different directions, the whole business must in short order be brought to a standstill. An uniformity of system on all county roads is not the least noticeable feature of the single management. When a traveller in Wentworth strikes a road properly graded and rounded up, he recognizes at once the landmarks of a county road.

The first matter taken in hand by the Superintendent was the preparation of the annual estimates for road maintenance. Much interest was taken in this, which had been the subject of considerable discussion before the submission of the by-law. The total mileage was now 140 miles, including two additional miles recently assumed to supply missing connections, and the total estimate, as submitted in the report to the council, amounted to $13,660, or nearly $100 per mile. This, however, included the estimates for refacing with 4 inches of metal, 12 feet in width, 2 miles of one of the toll roads just taken over, at $800 per mile, and for refacing 1 1-4 miles of another road, 8 feet in width, at $480 per mile. It also included the first estimate of $2,975 for replacing with a culvert and fill the trestle work bridge before referred to, which his inspection at once discovered to be in a dangerous condition. It is noteworthy that, although the detailed expenditure varied from the amounts estimated in many instances, yet the total expended account on maintenance during the year 1903 was $13,637.46, or within $30 of the total estimate of $13,660.

Other necessary preliminaries to the undertaking of the good roads scheme in Wentworth were the purchase of road machinery and the acquisition of gravel pits and stone quarries. As regards the latter, it is probably sufficient to mention that Wentworth has expended thus far about $1,400 on this account, and holds by purchase or leasehold six stone quarries and three

gravel pits, more or less conveniently located in different parts of the county. It might also be stated that of the toll roads taken over by Wentworth one only (4 miles) was a gravel road, and that except for facing purposes gravel has not hitherto been extensively used in Wentworth County.

Prior to the year 1903 the county owned in the way of road machinery one portable rock crusher, with capacity of about 14 cords per diem, and one horse roller of five tons weight. These had been used partly for repairs and construction purposes by the county, and partly for the use of the local municipalities, to whom they had been loaned, as occasion arose. In purchasing machinery for the new road system, it was considered advisable (taking its costly nature into account) to limit its amount to something not largely in excess of what would be the requirements of the county for repairs and reconstruction purposes, after the completion of the new roads now proposed to be constructed. With this in contemplation, the county proceeded to purchase the following: One Universal steam roller, of 9 tons weight (10½ when loaded), 35 horse-power. This was considered the roller best adapted to country roads, sufficiently heavy for all practical purposes, easily handled, and one that with reasonable precautions would pass safely over any ordinary country bridges and culverts. A second rock crusher of similar capacity with the one already owned by the county; two road graders; one scarifier, of 1,500 pounds weight, made to the order of the superintendent, and reported to have done good service; one tank with sprinkler, for use prior to rolling; four wheel scrapers; two drag scrapers; three grading ploughs; one pick plough, etc., etc.

For operating the rock crushers and graders, traction engines have been hired, and as regards the use of a traction engine for drawing the graders, the Superintendent reports as his experience that where the road is solid a traction engine is preferable to teams, being both steadier and cheaper, but where the engine is required to travel on loose ground it loses its traction power, and teams must be employed. The total amount expended by Wentworth during the year 1903 in the purchase of machinery was nearly $6,000.

From various causes the work of constructing the 62 miles of new roads in Wentworth, for which the appropriation of $48,350 was made, progressed but slowly during the year 1903. The length of time necessarily occupied in organizing and furnishing the machinery required for the new undertaking, the employment during the earlier part of the season of what county machinery was available in other necessary work, and the difficulty, and at times impossibility, of procuring sufficient labor and teams, all contributed to cause delay and to make the expense of the work much greater than was originally estimated. Out of the good roads fund of $48,350, appropriated for new roads, only $11,269.23 was expended during the year 1903, and although about 15 miles of new roads were graded and rounded up, but 2 1-8 miles were completely constructed.

The estimates for new roads were as follows :

For macadamizing 4 miles at $1,000 per mile ....$ 4,000
For macadamizing 22½ miles at $1,500 per mile.. 33,750
For macadamizing 35½ miles... 10,600

Out of the four miles, for which $4,000 was appropriated, ¾ mile, which passes through a village, was constructed with 9 inches of metal, 12 feet in width, and an additional ⅝ mile, 8 feet in width, making a total of 1⅜ miles out of the 4 miles fully completed, and about 1½ miles additional graded, $3,987.06, or practically the whole appropriation of $4,000 having been expended. The excess of the cost of this road over the orginal estimates is partly accounted for by the extra width of 12 feet, which was decided later, for the ¾ miles of road passing through the village referred to, the cost of constructing the portion 8 feet in width costing $1,055 per mile.

The 22½ miles, for which the appropriation was $1,500 per mile, comprises three separate roads, containing 4½, 5, and 13 miles, respectively. Of the 4½ miles, ¼ mile was macadamized with 9 inches of metal, 8 feet wide, the cost of which was $522, the length of haul being four miles; $300 was also expended in grading on this road. On the five-mile road the work of construction was not commenced, and the road was maintained from the appropriation made therefor and for all other roads in the early part of the season.

On the 13 miles of roads, out of the $19,500 appropriated for construction purposes, $5,925.43 was expended, as well as $390 appropriated for maintenance, this expenditure providing for the grading of all but 2½ miles, and the macadamizing of 1½ miles with 9 inches of metal, 9 feet in width, the cost of construction for the mile, from which the length of haul did not exceed ½ mile, being $1,800.

The appropriation of $10,600 for 35½ miles of roads, covers five different

roads, the appropriation for which varies from $150 per mile to $1,000 per mile, according to the condition of the several roads, some 20 miles of which are old macadam roads, more or less out of repair, and to the amount which, according to the estimates of the County Commissioners, who formulated the scheme, these roads would require to have expended upon them, to raise them to the condition of county roads. Of the whole of this appropriation only $512.46 was expended in 1903 for grading and repairing an old macadam road of 3½ miles in length, the original appropriation for which was $1,200.

County Road Appropriations and Expenditures for 1903.

Nos.	Roads.	Miles.	Appropriations.		Expenditures.		
			G. Roads.	Repairs.	G. Roads.	Repairs.	Early. Repairs.
			$	$	$ c.	$ c.	$ c.
1	D. and W. Beverly	12	3,000	360	.....	223 08	.....
2	Ninth Beverly	9.50	2,400	360	.....	68 50	.....
3	Lynden	4	4,000	160	3 987 06	.....	.....
4	Governors	5	.....	350	.....	337 25	20 30
5	Governors extension	4.50	6,750	135	844 28	.....	.....
6	Ancaster stone	12.28	.....	2,535	.....	2,645 60	132 89
7	D. and B. hill	1.14	.....	400	.....	451 50	.....
8	Green	5	7,500	200	.....	22 00	.....
9	Plains	4.16	.....	600	.....	550 27	18 00
10	Port Flamboro'	2.28	.....	250	.....	257 93	18 00
11	Waterdown	4.50	.....	3,175	.....	4,072 89	109 63
12	Waterdown extension	2	1,000	.....	.....	.....	4 13
13	Town Line	5.25	.....	400	.....	133 62	36 98
14	Town Line extension	7	1,000	165	.....	203 15	.....
15	Sydenham and extension	2	2,000	70	.....	65 31	8 73
16	D. and W. W. Flamboro'	3.25	1,200	.....	512 46	.....	58 50
17	Brock	14	.....	720	.....	24 65	82 10
18	Hamilton and Caledonia	10	.....	840	.....	348 32	400 16
19	Mt. Albion	6.82	.....	940	.....	946 09	42 97
20	Stony Creek	13	.....	1,610	.....	1,802 37	114 74
21	Binbrook	13	19,500	390	5,925 43	390 00	37 60
22	Roads and bridges	.....	.....	.....	.....	381 27	.....
	Totals	140.68	48,350	13,660	11,269 23	12,552 73	1,084 73

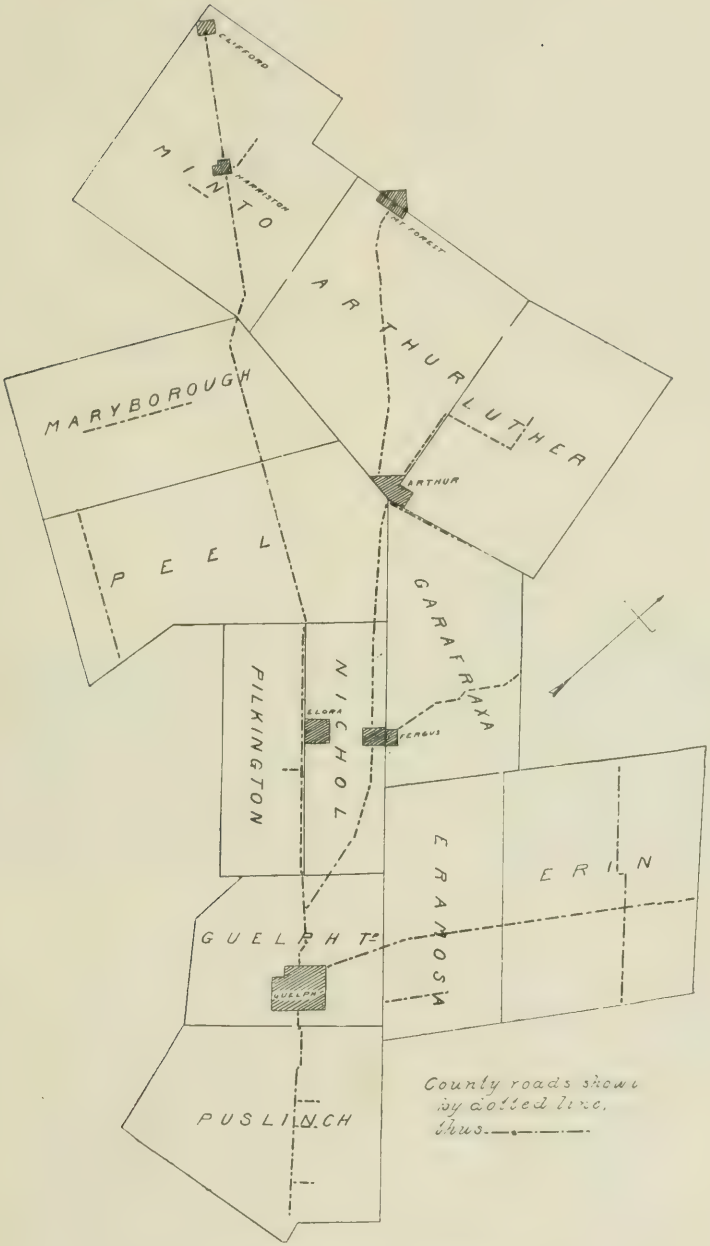
WELLINGTON COUNTY ROADS.

Report by Jas. McEwing, Chairman County Roads Committee.

When the Act for the improvement of public highways was enacted by the Legislature in 1901, the County of Wellington was in a somewhat unique position in regard to public highways. For many years the county had been maintaining a county road system 144 miles in extent. Part of this system was originally constructed by the county; part of it had been built by the municipalities in which it was situated, and afterwards taken over by the county as part of the county system, the municipalities being reimbursed by the county for the cost of construction; and part of the system had been owned by road companies, who had built gravel roads in different sections of the county, and collected tolls thereon from the travelling public. The county had also purchased these company roads.

The original cost of constructing and acquiring the 144 miles of county road was two hundred and seventy thousand dollars ($270,000), and it required an annual expenditure of nearly eleven thousand dollars ($11,000) for the proper maintenance of the 144 miles of county roads. These roads were originally located and constructed with a view to providing an outlet to Guelph and securing connection with the railway, and as that was the shipping market for nearly all the county municipalities, the county system for many years gave satisfactory results to the general public.

When the railways were extended through the northern portions of the county, providing shipping markets in every municipality, the conditions were entirely different. New roads leading to the markets had to be constructed and improved. The expense of this work had to be met by the municipalities within which the highways were situated; the county not being willing to assume them as county roads. Under these conditions a number of the municipalities, not having a fair proportion of the county roads situated therein, considered that they were being unfairly treated, inasmuch as they had to construct roads to the new markets at their own cost, while they were also being annually taxed for the mainten-



Wellington County Roads.

ance of the county roads, which, under the new conditions as to markets, were very little used except by the residents of the municipalities within which they were situated.

Under these unfair conditions a strong movement arose for the abandonment of the county roads to the municipalities within which they were situated. This movement would doubtless have been successful but for a difficulty met with in the matter of the original title to certain roads which had been acquired by the county, and which enabled the municipalities to avoid all responsibility for the maintenance of said roads if abandoned by the county.

Special legislation was then obtained authorizing the county council to grant aid to roads other than county roads, to enable the county council to deal justly by the different municipalities in the matter of road expenditure. The measure was designed on lines of equity, but in the practical application of the principle it was a failure. In many instances influences were at work in the council which prevented justice being done when the grants were made, and the suffering municipalities soon realized that they were always more or less at the mercy of cliques or combinations which might be found in the council, hence a good deal of feeling against the county roads system existed in several sections of the county, when the Act for the Improvement of Public Highways was passed in 1901.

In that measure provision was made which permitted a municipality to apply the whole or part of the monies to which it was entitled under the Act towards paying any expenses that might be incurred in the purchase of toll roads within the municipality, or for freeing the same from tolls. The Act apparently took no cognizance of conditions such as existed in the County of Wellington, where an expensive system of county roads were being maintained by the county, and large sums of money had already been expended by the county in the purchase of toll roads, and freeing the roads from tolls, no provision being made for applying the monies to which it was entitled under the Act, towards reimbursing the county for the expenditure already incurred in doing the very thing which the Act was supposed to be specially designed to aid and encourage.

Briefly the situation was this: In the County of Wellington, when the Act was passed, an extensive system of county roads, which had cost the county a large sum of money to acquire, was being maintained by the county. A strong feeling against the county roads system existed in some sections of the county, owing to the uneven distribution of the roads in the different municipalities, and no recognition was given in the Act to any system of county roads that might be in existence at the time of passing the Act. However, this oversight has been remedied to a certain extent by the amendments to the Act which were enacted during the session of 1903. The foregoing explanation of the situation will give some idea of the problem which the Wellington County Council had to solve if the county was to derive any benefit from the provisions of the Act for the Improvement of Public Highways. It will also give a better understanding of the reasons which induced the council to take the course which has been taken in dealing with the subject of county roads under the provisions of the said Act.

At an early date after the passing of the Act in 1901 the council appointed a special committee with instructions to go fully into the question as to whether it would be advisable for the County of Wellington to endeavor to take advantage of the provisions of the Act, and also as to how the provisions of the Act could be most readily applied to the conditions existing in Wellington. That committee reported to council at the next session strongly recommending that the County of Wellington should take advantage of the provisions of the Act; also that, in compliance with the requirements of the said Act, a By-law be prepared and passed by the county council, designating the roads to be improved under the provisions of the Act; that the roads so designated be the 144 miles of roads now maintained by the county, along with an additional 26 miles, making a total of 170 miles of road to be located within the municipalities which have not a fair proportion of the old county roads; that the 26 miles be so distributed in the different municipalities as to comply with the provisions of the Act as to the proportion of county road to which each municipality would be entitled; that, in the opinion of the committee, if this course was pursued, a fair measure of justice would be dealt out to those municipalities which had suffered in past years under the county roads; that by so doing the feeling antagonistic to the county roads system would be allayed and the council would be able to proceed with the improvement of the county roads without any section of the county feeling aggrieved over the expenditure incurred. Each municipality would receive a

fair proportion of the public money which was being expended on county roads.

The report of the special committee was adopted and the recommendations therein were approved by the county council. A by-law was prepared and finally passed at the January session of 1903 designating the roads to be improved under the Act. This By-law was submitted in accordance with the provisions of the Act to the various township councils and received the approval of the necessary proportion of the township councils. A By-law was also passed appointing the county councillors representing the various county council divisions, as commissioners to superintend the proposed work of road improvement upon the county roads, situated within the divison which they represented.

At the session of May, 1903, sums of money were granted towards paying the expenses which might be incurred in improving the county roads. Sums of money were also granted by by-law under section 7 of the amendment of 1903 to the Act of 1901, to the various incorporated towns and villages in the county for the improvement of certain highways situated within the said towns and villages. Instructions were given to the commissioners to make an inspection of all county roads situated within their divisions, making notes of the sections of such roads that were in the greatest need of improvement. Blank forms were supplied to the Commissioners to fill up and return to the county clerk giving specifications of sections of road they proposed to improve, the nature of such improvement, whether draining, grading, gravelling, reshaping of roadway, resurfacing of roadbed with gravel, repairing or constructing bridges or culverts, also the estimated cost of the proposed work. Blank forms were also provided to fill up and return to the county clerk after the work was completed, giving the section of the road, the nature of the work done, and the actual cost of such work. Copies of all such returns were to be forwarded to the Provincial Public Works Department in Toronto.

In carrying out the work on the roads practically all the commissioners employ some person who resides adjoining the road and who is known as the road overseer. This man is paid by the day for time expended on the road, and has charge of from 5 to 8 miles of road as the case may be. His duties are to see that the road is kept open during the winter, to receive and keep a proper account of and spread all gravel being delivered on his section of the road, break or rake off stones, make small repairs to culverts or bridges, construct new culverts, give such assistance as may be required when the road machine is at work on his section, clean out the watercourses, cut the weeds in the road allowance, and have a general oversight as to keeping his section of the road in good condition for the traffic passing over it. Gravel of the best quality available for the county roads is purchased and paid for by the commissioner.

A Main Road in Wellington.

Hauling gravel is let by public tender, by the yard, strict instructions being given to the road overseer to accept delivery of no gravel which is not up to a certain standard. Concrete and sewer pipes for drainage and culverts are purchased by the commissioner under contract to deliver. In cases where this can not be arranged, teams are employed by the day to secure delivery. Grading and reshaping the

roadway is almost entirely done by means of the road machine, this being considered the most satisfactory method of doing the work. Some of the divisions own a road machine and the commissioners hire men and teams to operate the machine. In other divisions the townships have road machines which are hired by the day, the commissioner hiring men and teams to operate it. In other sections machines are owned by private parties who supply all or part of the power to operate the machines as may be arranged.

Practically all culverts being constructed are either concrete or sewer pipe, if not very large. If large, they are built of concrete constructed in the form of an arch. Bridges are being constructed with stone or concrete piers, and steel superstructures. An effort is being made as far as possible to have all new structures of a permanent character.

The manner of treating the roadbed varies somewhat on account of the traffic requirements, the supply and cost of material, and the varied conditions of the original roadbed. A considerable portion of the county roads were originally constructed 30 feet or upwards in width between the ditches, with a sheer drop of from one to four feet to the bottom of the ditch alongside, and owing partly to faulty construction and partly to heavy traffic the grade between the ditches had become comparatively level, with the roadbed in many places lower than the earthwork adjoining. The principle adopted in reshaping such roads is to practically abolish ditches altogether, that is the old style of ditch with the sheer drop from roadway to bottom of ditch. The earthwork is graded down between the metal roadbed and the ditch, leaving a crown on roadway of one and one-half inch to the foot from the centre of roadway to the outside edge of what would then be a watertable instead of a ditch. The roadway is finished in an evenly rounded grade from the centre of roadbed to the level of the bottom of the watertable leaving the roadway graded in such form that a vehicle can be safely drawn down from the metal roadbed into the watertable without any danger of being upset.

A considerable portion of the old county road is not less than 30 feet between the outside of the watertables when completed in the foregoing manner. On sections of road where the traffic is comparatively light, a width of 22 to 24 feet makes a satisfactory roadway, but when the soil is of a loamy, friable nature the roadway is finished with a little more crown.

Drainage is secured by constructing the watertable at from 18 to 24 inches below the level of the roadbed, and by providing sufficient outlets from the watertable to prevent water accumulating alongside the roadway. In sidehills where the roadway is soft or inclined to be boggy, tile drains are placed just outside the metal roadbed, and carried to a proper outlet giving very satisfactory results. The first and most important principle in the construction and maintenance of roads is to get the water out, and keep it out of the roadbed.

The method adopted by the council for superintending and carrying out the work of road improvement during the past season has not proved to be an unqualified success, owing largely to lack of experience in such work. Few if any of the Commissioners succeeded in filling out in a satisfactory manner the forms of specifications for the work proposed to be done in their divisions. A similar lack of information in regard to the nature and amount of work done was met with in the returns made after the work was completed. Unless there is a radical change from the method adopted by the council for the supervision of the work of road improvement the difficulties met with the past season are likely to be sharply accentuated in the near future, owing to the legislation of last session re the formation of county councils.

If highway improvement by a system of county roads is to be successfully carried out under the Act of 1901, it is absolutely necessary that there should be continuity of purpose, uniformity in the work and economy in the expenditure. None of these desirable results can be obtained if the work is under the supervision of 20 or 25 different commissioners with different ideals of roadmaking and perhaps 50 per cent. of these commissioners annually changed by the electors. Having 170 miles of county road to improve and maintain, and an annual expenditure of close to $15,000 on roads, it would certainly appear like a good business transaction for the council to place that expenditure under the supervision of some competent person who would be likely soon to become an expert at that kind of work.

The question of establishing a system of county roads under the Act of 1901, whether it would be advisable to do so, and the general advantages to be gained from a county road system, can only be decided by having a thorough

knowledge of the conditions which obtain in the matter of roads and markets. Under the conditions previously outlined, it certainly was advisable to do so in the County of Wellington. The conditions are so varied in the different counties and in the different sections of the Province that each county should consider the question from the point of view as to existing highways and market conditions in that county. The broad principle might be laid down that in counties where, to any great extent, the residents of one or more municipalities travel the highways of adjoining municipalities to reach their market, a county roads system would probably be the most fair and satisfactory means of providing that which is so desirable—good leading roads to market. But in counties where the residents of the different municipalities do not travel to any great extent the highways of adjoining municipalities to reach their markets no good purpose would be served by establishing a county roads system. In other words, when the highways are local in their service they should be locally maintained. Where highways are general in their service they should be maintained by the general public who use them.

In Simcoe.

SIMCOE COUNTY ROADS.

Report by D. Quinlan, Chairman Roads and Bridges Committee.

In January, 1902, the County Council of Simcoe passed a By-law designating certain roads for improvement under the Act of 1901, but from opposition on the part of the councils of the local municipalities, arising in a great measure from the fear that our county council could not, or would not, spend the money to as much advantage as the local authorities would, and in part from dissatisfaction as to the roads designated, the answers returned to the council were not sufficiently numerous to enable the council to proceed.

Believing, however, that the negative answers given by some of the municipalities were caused by dissatisfaction with the roads designated, the county council in June of the same year passed another by-law, slightly different to the first as to the roads, and submitted the usual questions again, with the result that more than one-third of the municipalities expressed themselves as adverse to the system. Nothing daunted, the county council believing a county system to be in the interest of the public, determined to give the ratepayers a chance of deciding the question for themselves directly, as provided in sub-section 4 of the Act, namely, "Are you in favor of a county road system"?

We found that a good deal of interest was taken in the subject; arguments were presented, both pro and con, through the press, and in the end the people thoroughly grasped the situation, and at the municipal elections held in January, 1903, the majority in favor of the proposition was some 1,500. The towns and villages were overwhelmingly in favor of the system, whilst the townships, strange to say, were divided, some being in favor, whilst others were as strongly opposed as the towns and villages were in favor.

The majority of the municipalities had objected to the roads designated and this difficulty was got over by reference to arbitration, as provided by the Act. The very idea of an arbitration in which a municipality is one of the parties, seems to imply a long,

tedious and expensive piece of legislation, but we found no difficulty whatever worth speaking about, and the expense trifling, for in every case, the question as to which roads were to be selected was settled amicably between the local council and the county council, and the selections made by this pre-arrangement put into the the form of awards, thus rendering the arbitration of a purely formal character.

Through want of consideration, however, a mistake was made in one or two cases in the selection of arbitrators, either the county council, or the local municipality being unmindful of the fact that officials of the municipalities are disqualified from acting as arbitrators, and the result was in these cases that our work had to be done over again in order to avoid some person, dissatisfied with the roads selected, moving on the advice of some overwatchful and ambitious limb of the law to quash the awards. Having overcome these difficulties, and the season advancing, we were anxious to begin work, and in May work began on the roads selected. After incurring a great deal of expense in this way, we advertised our debentures—$100,000 worth—bearing 4 per cent., for sale and receiving a number of offers, we accepted the best, and proceeded to close the deal, only to find that our difficulties were not yet over. Acting on advice, we proceeded on the assumption that section 9 of the Act warranted a county council in raising the funds without submitting the question as to the issuing of the debentures and raising the funds to the ratepayers under the Municipal Act and obtaining their assent. Any ordinary layman would of course imagine that the ratepayers having once approved of the scheme which necessarily involved the raising of the funds, it would not be necessary to submit practically the same question again to them in a different form. Had it occurred to us that this was not the plain meaning of the Act, we might, in order to avoid trouble, have submitted the necessary by-law to the ratepayers at the same time as we submitted the questions set out in sub-section 4 of sec. 2. The solicitors for the purchasers of the debentures raised the objection I have spoken of, and we were then in the dilemma of either stopping our work and submitting a by-law, with the possibility of its defeat, or going to the Legislature. After discussing the question with the Provincial Commissioner of Highways, who stated it was the intention of the Act that the County Councils should have the power to raise the necessary funds within the limits defined by sec. 9, we brought the matter to the attention of the Legislature, and at the last session they put the section in question beyond doubt by adding words to show clearly the intention as interpreted already to us.

We designated in our system 434 miles, seemingly a very great amount, but comparatively small in view of our very large area. It was the size of our county and the difficulty in satisfying the different local municipalities that determined us on having so much. As it is, however, we, I think, made a mistake; we should have selected fewer roads, a less mileage. We should have been able to push our work to a speedier conclusion with better results. We have already constructed about 128 miles of roads, at a cost of $61,602.61.

Gravel, when obtainable, we found the most economical roadmaking material, and, with the exception of some three or four miles of stone, it was the only material used, and where good gravel could be obtained, and laid on a properly graded road and well rolled after rain, the results were admirable. We determined not to purchase steam rollers, because of the number that would be required to do our work, it being considered owing to the fact that we would have to depend on rainfall to dampen the road, without which rolling is useless, we would need so many rollers to take advantage of these times, that it would only pay us to purchase the ordinary horse rollers. These rollers have given good results. The rolling, however, must be done when the road is damp.

Including the Government grant, we purpose spending $150,000. $140,000 of this sum we have determined to spend in the townships in proportion to the equalized assessed values. The remaining $10,000 we add for the improvement of those roads generally used by more than one municipality, that is to say, for example, those leading to a market town or commercial centre and passing through one township as a main thoroughfare for the ratepayers of another township. Out of the general funds of the county we provided $5.000 for the improvement of the roads in the rural parts of the towns and incorporated villages, confining this, however, to such roads as are continuations of the roads within the general system. Our experience teaches us that these roads within the towns and villages are generally neglected, and this neglect in all cases is greatly to the disadvantage of the rural communities.

Labor being scarce and wages correspondingly high, we of course have found that the cost of road-making has been

greater than it would have been even two years ago. On the whole, the results have been good and encouraging. Roads have been straightened, grades have been moderated, if not done away with, and, as a rule, first-class highways have been furnished, upon which heavy loads can be drawn with comparative ease, and on which it is a pleasure to drive. If the use of broad tires on waggons could be successfully enforced the evil of cutting the roads up would be sensibly diminished, if not done away with altogether.

The only objection that I have heard to the system has sprung from people whose residences are on the county roads, and to whose places the work has not yet reached. We have to begin somewhere. We began at the centres—the towns and villages—and worked outward therefrom. We were not able to finish our work, and as there are always some people to find fault, the fault-finders were usually confined to those up to whose homes the roads were not finished at the time we were compelled desist. It speaks well for the system, however, when I can say that the criticism comes from these people who must think highly of the completed portions when they complain because the balance is not yet finished.

COUNTY ROADS BY-LAW OF LANARK.

By Law No. 486.

By-law designating highways to be improved and toll roads to be purchased in accordance with the "Act for the Improvement of Public Highways" and authorizing the issue of debentures of the County of Lanark to the amount of $65,000 for the purpose of raising the sum required therefor.

Passed June 28th, A.D. 1902.

Whereas by an Act entitled "An Act for the Improvement of Public Highways" the sum of $1,000,000 was set apart to be paid out of the Consolidated Revenue Fund of the Province of Ontario to aid in the improvement of public highways upon the terms and conditions in the said Act set forth;

And whereas it is desirable that the County of Lanark participate in the said sum so set apart and for that purpose should adopt a system of county roads and construct or repair the same in accordance with the regulations of the Public Works Department with respect to highways as in the said Act prescribed;

And whereas it is necessary to designate the highways to be improved in accordance with the provisions of the said Act;

And whereas it is desirable to raise the sum of $65,000 to be applied for the improvement of the said highways and the purchase of certain toll roads;

And whereas in order thereto, it will be necessary to issue debentures of the said county for the sum of $65,000 as hereinafter provided, which is the debt intended to be created by this By-law;

And whereas it is desirable to make the principal of the said debt repayable by yearly sums during the period of twenty years, being the currency of the said debentures; said yearly sums being of such respective amounts that the aggregate amount payable in each year for principal and interest of said debt shall be as nearly as possible equal to the amount so payable in each of the other nineteen years of the said period;

And whereas the total amount required by "The Municipal Act" to be raised annually by special rate for paying the said debt and interest as hereinafter provided is a sum sufficient to discharge the instalment of principal and interest accruing due on the said debt for such year as shown in the fourth column of Schedule "A" hereto annexed;

And whereas the amount of the whole rateable property of the County of Lanark according to the last revised and equalized assessment roll is $10,531,883;

And whereas the existing debenture debt of the said county is the sum of $20,000, of which no principal or interest is in arrear;

Therefore the Council of the Corporation of the County of Lanark enacts as follows:—

1st. The toll roads in the County of Lanark which are as follows:

(1) Commencing at the westerly limit of the Town of Perth at the intersection of Dufferin street in the said town with the boundary line between the Townships of Bathurst and Drummond, thence along the present macadamized road to the southern boundary of the Village of Lanark.

(2) Commencing at the intersection of the eighth concession line of the Township of Bathurst with the said boundary line between the Townships of Bathurst and Drummond, thence westerly along the present toll road to the Village of Fallbrooke, in the said Township of Bathurst, and

(3) Commencing at the intersection of the third concession line with the said boundary line between the Townships of Bathurst and Drummond, thence westerly along the third concession line to the end of the present macadamized road being at or near the side line between lots numbers eighteen and nineteen in the said third concession, shall be purchased by the said county and freed from tolls and the same when so purchased shall be assumed by the said county and form part of the County Highway System.

2nd. The following highways are hereby designated as the highways to be improved in accordance with the provisions of the Act for the Improvement of Public Highways, namely:—

(1) Commencing in the Township of Montague on the road between Smith's Falls and Merrickville at a point about eight miles distant from the eastern boundary of the Town of Smith's Falls (and being at or near Kilmarnock) thence northerly, westerly and again northerly along the said Merrickville road to the said boundary line of the Town of Smith's Falls.

(2) Commencing at the northwestern boundary of the Town of Smith's Falls on the Old Perth Toll Road, thence west-

erly following the said Old Perth Road by way of the Village of Port Elmsley to the eastern boundary of the Town of Perth.

(3) Commencing at the northern boundary of the Town of Perth at the intersection of Drummond street in the said town with the third concession line of the Township of Drummond. Thence northerly along the road commonly known as the Innisville and along the present travelled road through the Townships of Lanark, Ramsay and Beckwith to the western boundary of the Town of Carleton Place.

(4) Commencing on the above mentioned road from Perth to Carleton Place at the intersection of the third concession line of the Township of Ramsay with the said road, thence northerly and westerly along the present travelled road to the second concession line and thence northwesterly along the said second concession line as travelled to the side line between lots number 20 and 21.

(5) Commencing at the northwestern boundary of the Town of Almonte thence northwesterly along the ninth concession line of the Townships of Ramsay to the side line between lots number 20 and 21, thence westerly along the said line to the second concession line.

(6) Commencing on the ninth concession line of the Township of Ramsay at the intersection of the side line between lots number 20 and 21, thence northwesterly along said ninth concession line to the boundary line between the Townships of Ramsay and Pakenham, thence northwesterly along the ninth concession line of the Township of Pakenham to the side line between lots number 5 and 6 in the said concession, thence northerly along the present travelled road to the Village of Pakenham, thence northwesterly along the eleventh concession line to a point at or near lot number 15 where the travelled road turns to the west, thence westerly along the present travelled road to the side line between lots 16 and 17 in the tenth concession of the said Township of Pakenham.

(7) Commencing at the southern boundary of the Town of Carleton Place where the Franktown road intersects the same, thence southerly along the present travelled road leading to Franktown through the Township of Beckwith to the third concession line of the said township; again commencing at the intersection of the Franktown road with the eleventh concession line, thence northeasterly along the said eleventh concession line to the boundary line between the Townships of Beckwith and Goulbourn.

(8) Commencing in the sixth concession of the Township of South Sherbrooke where the line of the Canadian Pacific Railway Company crosses the present travelled road at or near the Maberly Station of the said railway company, thence northwesterly along the said travelled road through the Village of Maberly to the eleventh concession line of the said township.

(9) Commencing at the northern boundary of the Village of Lanark, thence northerly along the present travelled road by way of Herron's Mills to the Village of Middleville in the Township of Lanark.

(10) Commencing on the said travelled road between Lanark and Middleville at Herron's Mills, thence northerly and westerly along the present travelled road through the Township of Lanark and Dalhousie to Watson's Corners.

(11) Commencing at the northwestern end of the stone road at or near the Fall River in the Village of Fallbrooke and thence northerly and westerly along the usual travelled road in the Townships of Bathurst and Dalhousie to the Village of McDonald's Corners.

(12) Commencing at the fourth concession line of the Township of Darling, on the present travelled road from Brightside to Tetlock, thence northerly along the said road to Tetlock, thence easterly along the side line between lots numbers 5 and 6 in the 5th and 6th concessions of the said township to the seventh concession line, thence in a southerly direction along the present travelled road to the boundary line between the Townships of Darling and Lanark at the eight concession line.

(13) Commencing on the boundary line between Dalhousie and Lavant Townships on the present travelled road on lot number one in the sixth concession, thence northerly passing through lots numbers 1, 2, 3, 4 and 5 to the 8th concession line. Also commencing on the said boundary line between the aforesaid townships on the present travelled road at lot number 1 and part 2 on the 5th concession in an easterly direction, thence following the present travelled road through fifth and fourth concessions of the said township to the division line between lots 12 and 13 in the said 4th concession.

(14) Commencing on the boundary line between the Townships of Elmsley and Bathurst at the intersection of the same with the boundary line between the Townships of Bathurst and Drummond, thence westerly along the said boundary line between the Townships of Elmsley and Bathurst and Burgess and Bathurst to Grant's Creek, thence southerly along the main travelled road in the Township of Burgess a distance of two miles.

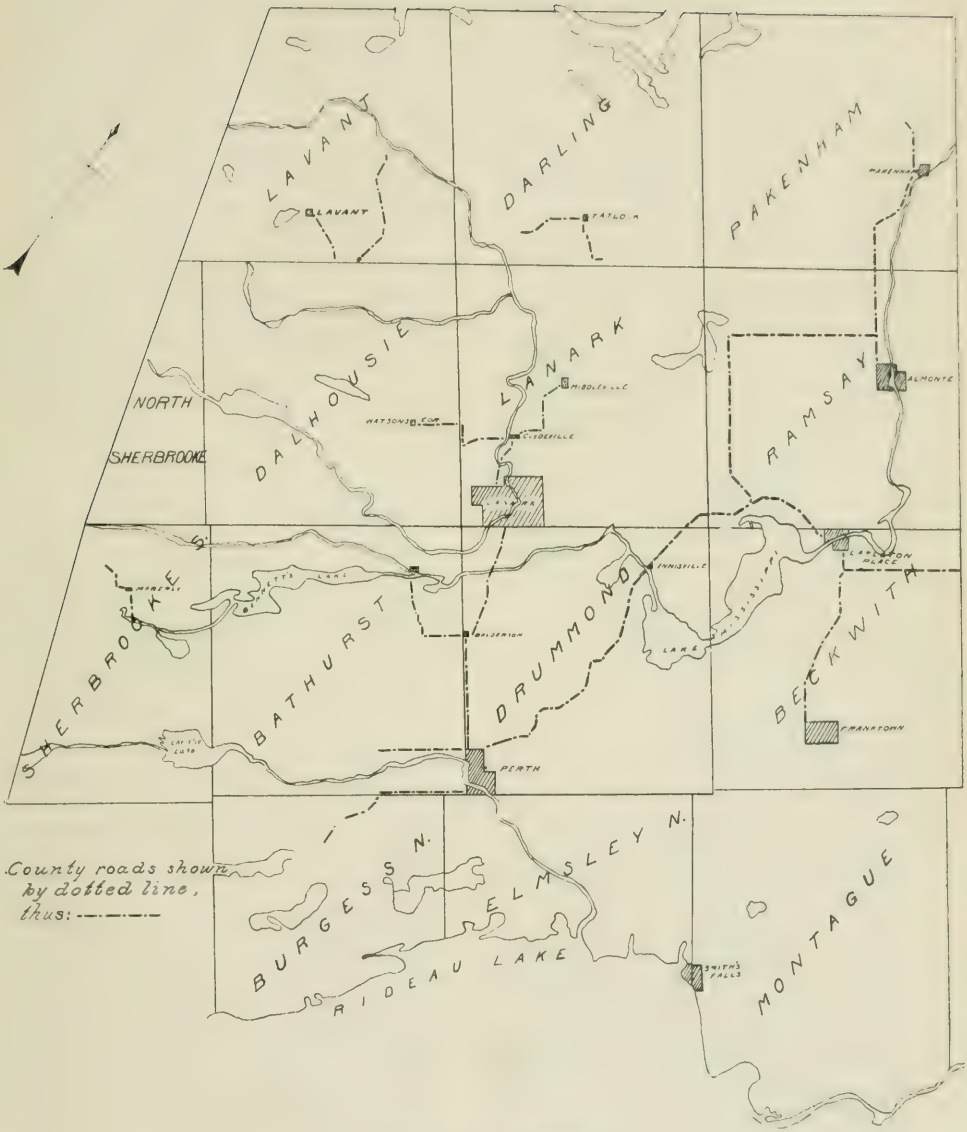
And the said highways when so improved shall, with the toll roads purchased as hereinbefore provided, be assumed and maintained by the county and shall form the county highway system of the County of Lanark.

3rd. The sum of $65,000 shall be expended by this county in the improvement of the said highways hereinbefore mentioned and the purchase of the said toll roads; and for the purpose of raising the said sum debentures of the said county to the amount of $65,000 in sums of not less than $100 each shall be issued on the eighteenth day of December, 1902; each of which debentures shall be dated on the day of the issue thereof and shall be payable within twenty years thereafter.

4th. Each of the said debentures shall be signed by the Warden of the said county and countersigned by the Treasurer and Clerk of the said county who shall attach thereto the corporate seal of the said corporation.

5th. The said debt and the debentures issued therefor shall bear interest at the rate of three and three-quarters per cent. per annum from the date thereof, and the said debentures both as to principal and interest shall be payable annually on the eighteenth day of December at the Bank of Montreal at the Town of Perth and shall have attached to them coupons for payment of said interest which coupons shall be signed by the Warden and Treasurer of the said County of Lanark.

6th. During the currency of the said debentures there shall be raised annually by special rate on all the rateable property in the County of Lanark the sum required for the purpose of paying the



Lanark County Roads.

amount due in each of the said years for principal and interest in respect of the said debt as shown in Schedule "A" hereto annexed.

7th. This by-law shall take effect upon the final passing thereof.

SCHEDULE "A."

Referred to in the foregoing By-law showing how the amount thereby required annually by special rate is apportioned.

Year.	Principal.	Interest.	Total.
1903.. ..	$2,200 00	$2,437 50	$4,637 50
1904	2,300 00	2,355 00	4,655 00
1905	2,400 90	2,268 75	4,668 75
1906..	2,500 00	2,178 75	4,678 75
1907	2,600 00	2,085 00	4,685 00
1908	2,700 00	1,987 50	4,687 50
1909	2,800 00	1,886 25	4,686 25
1910	2,900 00	1,781 25	4,681 25
1911..	3,000 00	1,672 50	4,672 50
1912	3,200 00	1,560 00	4,760 00
1913..	3,300 00	1,440 00	4,740 00
1914	3,400 00	1,316 25	4,716 25
1915	3,500 00	1,188 75	4,688 75
1916	3,700 00	1,057 50	4,757 50
1917..	3,800 00	918 75	4,718 75
1918..	3,900 00	776 25	4,676 25
1919	4,000 00	630 00	4,630 00
1920	4,200 00	480 00	4,680 00
1921.... ..	4,300 00	322 50	4,622 50
1922	4,300 00	161 25	4,461 25

W. A. MOORE,
County Clerk.

W. J ANDERSON,
Warden.

By-Law No. 509.

(Amendment to the Foregoing.)

By-Law to amend By-Law No. 486 entitled "By-Law designating highways to be improved and toll roads to be purchased in accordance with the "Act for the Improvement of Public Highways" and authorizing the issue of debentures of the County of Lanark to the amount of $65,000 for the purpose of raising the sum required therefor.

Passed February 11th, A.D. 1903.

Whereas it is desirable to amend By-Law No. 486 of this Council by striking thereout the designation of highways within the Townships of Montague and Elmsley North to be improved in accordance with the terms of the said By-Law and to provide in lieu thereof for the payment to each of the said townships of a certain sum to be expended in the improvement of highways within such townships.

Therefore the Council of the Corporation of the County of Lanark enacts as follows :

1. By-Law No. 486 of this council is hereby amended by adding to the fourth recital in the preamble to the said By-Law the words "and the grants of the townships hereinafter named."

2. The said By-Law No. 486 is hereby further amended by striking thereout sub-sections 1 and 2 of the 2nd section thereof and by inserting at the end of the said section the following :

2A. There shall be paid to the Municipal Council of the Township of Montague the sum of $7,160.00 to be expended in the improvement, in accordance with the regulations of the Public Works Department, of such roads within the said township as may be selected by the council thereof, which roads so selected and improved shall not form part of the County Highway System, but shall remain within the jurisdiction and under the control of the council of the said township.

2B. There shall be paid to the Municipal Council of the Township of Elmsley North the sum of $4,000.00 to be expended in the improvement, in accordance with the regulations of the Public Works Department, of such roads within the said township as may be selected by the council thereof, which roads so selected and improved shall not form part of the County Highway System, but shall remain within the jurisdiction and under the control of the council of the said township.

3. The 3rd section of the said By-Law is hereby amended by inserting after the word "roads" where the same is found therein the words "and the grants to the said Townships of Montague and Elmsley North."

W. A. MOORE,
County Clerk.

W. G. CAMERON,
Warden.

ROAD CONVENTIONS.

One of the main factors in advancing the good roads movement has been the holding of meetings in the various municipalities. It has been customary for municipal councils, when seeking to effect an improvement in system of management, or in methods of carrying on the work, to request the Commissioner of Highways to address a meeting in the locality. With rare exceptions these meetings have been well attended and the interest manifested by all in road improvement has been most encouraging.

The following report, from the Amherstburg Free Press, of a meeting held at Essex, under the auspices of the Essex County Council, to which township councils and others interested were invited, is given not merely as an example of the interest taken in these meetings, but also for the sake of the many points brought up and discussed, and full of general information to all municipalities. The report is as follows:

The Good Roads meeting at the town hall, Essex, on Friday last, was a success in every particular. The meeting is the outcome of a resolution passed at the last session of the county council appointing a committee to arrange for a meeting of the county and township councillors and representative men at Essex to discuss the whole question so that the people of the county might understand the workings of the Good Roads Act in all respects. Invitations had been issued by the Warden to the

different municipal councils asking them to send delegates, and nearly every municipality in the county responded some sending their whole councils. At the morning meeting there were about 200 representatives, which number was increased to about 300 in the afternoon. It is questionable whether as good a representation of municipal men has ever before been held in this county. Those who attended were there to get information, and they all went home well satisfied with the meeting. Many came opposed to a county scheme, but went home in favor of it. The address of A. W. Campbell, Commissioner of Highways, in the afternoon, occupied nearly two hours and was a clear, practical and instructive one that pleased everyone. The morning meeting was called to order at 10 a.m. on motion of Messrs. Brett and Stone, Warden W. T. Wilkinson taking the chair. The Warden called on J. A. Auld, M.P.P., who explained the provisions of the Government's Good Roads bill. The bill gives the county power to inaugurate a county road scheme. The county council by this scheme would designate certain roads on which the money would be spent. After getting the scheme in shape and passing a by-law the municipalities are notified and they have three months in which to say whether they approve or disapprove of it. If less than one-third of the municipalities oppose the scheme, the scheme stands, but if more than one-third oppose it the matter is left to vote of the people. In the county's by-law the amount to be apportioned to each township will have to be designated. To spread $100,000 over twenty years would mean about $6,000 a year. Now a large amount of the money spent on roads is practically thrown away. He thought it a mistake for the county to drive the townships into their scheme without their consent, though he would prefer to see the county and the municipalities go together in the matter. It was not fair that Windsor and Walkerville should get out of paying something towards a scheme that would mean a great benefit to them. Windsor, if it could not pay any cash towards the scheme, might throw off the market fees it charges the residents of the county. He believed the county council were prepared to go ahead and carry out the scheme that will meet with the approval of the ratepayers and the endorsation of the municipal councils. In reply to Mr. Stone the speaker said the expenditure of $100,000 would mean a rate of 80 cents on $1,000 assessment for 20 years. The towns will have to stand their share of the expenses but get no aid. He would not approve of spreading debentures over more than twenty years.

J. A. Buchanan said the county's equalization is $1,300,000. A rate of ½ mill would raise $6,500. That on a farm of 100 acres would mean $1.50 a year. Then if another $6,000 a year were spent for repairs to roads, that would mean another $1.50, or $3 a year on 100 acres.

Reeve Reaume of Anderdon thought the county councillors should be heard first and moved accordingly.

The Warden said they must rely on the feelings of the township councils. The bonded debt of the county is $44,000 which requires $4,000 a year. The question is are the people prepared for the extra tax imposed.

J. E. Stone was heartily in accord with the Good Roads movement and thinks that the county should take advantage of the Government grant. The Municipal World says the difference between good roads and bad roads is the same as the difference between a good suit of clothes and a suit of dirty rags. He thought the county council was willing to render its services if the municipal councils wish the scheme taken up. The tax would not be burdensome and the farms along the better roads would be increased in value. Farms in the vicinity of Essex on good roads sell for more than one-third of farms on poor roads though the land in both cases would be equal.

Ex-Warden J. A. Buchanan thought there were several reasons why the county should take up the scheme. We have the best county but the worst roads. Our markets are not the best so that farmers have to draw their produce. The county's bonded debt is the lowest in the Province, and ½ mill extra would raise enough in twenty years to pay off $100,000. The county should not build the roads and then leave them. It will require another $6,000 a year to keep them in good condition.

Ex-Warden A. Cole was in accord with Good Roads movement but wanted to hear the township councillors' opinions. The land here is hard to build roads on and we will find it very expensive.

R. R. Brett was heartily in favor of any scheme that would better the roads of the county. The roads in the central part of the county are not as good as those in the northern or southern parts. One reason he thought it would be better for the county to take hold of the matter, was that suitable road-making machinery could be purchased by the county, while no municipality would feel able to purchase

such machinery. When not using the machinery the county could rent or loan it to the townships so that they could build their other roads much cheaper and better. He was in favor of any scheme for bettering the roads. Before adjournment he would move for a committee to crystallize the views and opinions of the meeting into a resolution.

Alex. Reaume was in favor of good roads and if he had his way would name the Tecumseh Road as one of the roads to be assisted.

Ex-Warden William Price wanted to know what the reeves had to say. He would like to know if each township can have the say as to the expenditure of their proportion. If the township's portion can be spent in the township and the council can designate the roads in that township, the county scheme would be all right.

A. L. Lafferty was in favor of any practical scheme that will meet with the approval of the people. The trouble with the county council is how to go ahead and solve the problem, not of good roads, but of better roads. There will be no objections to the scheme. It will be hard to formulate a scheme that will satisfy the people of this township without taking the front road, as that is the most travelled road in the township. The scheme depends on direct taxation and it is a question if the representatives would be justified in going ahead with it without consulting the ratepayers.

Mayor Wigle of Leamington found that the town would have to pay their share of the rate but receive no share of the money. This would not suit the towns. As he understands the Act, if Talbot Road were taken up, the work would be done up to the east end of

In Eastern Ontario.

Mr. Auld said from the road work done in the last thirty years in the county, he would say keep it out of the hands of the local men. Essex County is the only county that has not a county engineer. The work should be done under a county engineer. He thought it would be a mistake to leave the county scheme to the local municipalities.

S. T. Anderson asked if the township councils could qualify for the grant, in case the county fail to take it up, without first submitting the question to their ratepayers.

P. Coyle did not agree with the county taking over the roads, as it would be better to leave the maintenance to the municipalities. The municipalities should designate the roads as far as possible.

Essex Town and then commenced again at the western edge of the town. He wanted to know the benefits we would get from the act. Mr. Campbell should tell us how the Act has worked in other places. Suppose the Middle Road was taken would it be expensive to macadamize it ? The town gives bonuses to aid industries in the town, whereas the people of the country surrounding the town really receive more benefit from them than does the town.

Thos. Weyburn did not know about Leamington, but he did know that whenever roads leading into Essex were helped by subscriptions the merchants of Essex have subscribed from one-third to one-half the amount subscribed in cash and work by the farmers.

Reeve Peterson of Gosfield South wanted to know if the money is to be

distributed according to the assessment of the different municipalities.

The chairman said the Province will pay $23,000 to the county; the county will formulate the scheme and designate the roads to be benefited. The by-law shall specify how the money is to be spent.

Mayor Brien of Essex said when he was a member of the County Council, several years ago, he introduced a resolution for the expenditure of $250,000 on the roads of the county. That the road and bridge fund be done away with and the amount used in paying off the debentures on this amount. Unless the people give and take a little, no scheme can be formulated. He would continue the scheme from year to year, till all the roads in the county were got in first-class condition. He disagreed with the proposition to leave the matter to the municipalities. Through a lack of good roads the people of this county have lost more than the cost of making good roads.

Reeve Plant of Maidstone came with no authority from his people. If they go into the scheme it will have to be submitted first to the people. If the Middle Road is made a macadamized road it would be objected to by some because the side roads are not helped. He thought the only way to keep up the side roads is by road work.

Reeve Brush, of Malden, asked if there was a scheme whereby the front road people, who get the most benefit, should pay the most for it, as is done in drainage matters. Malden had done away with the statute labor years ago, and got more work done for half the money than they used to spend. Malden councillors look after the scraping of the road without any commission.

Reeve Peterson of Gosfield South, thought a scheme of this kind should interest us all. Everybody this year wants to know what are we going to do with our roads, and as the Government has passed a law that will allow people to collect damages from municipalities for injuries sustained on account of the condition of the roads, it was in the township's interests to have the roads put in good shape. If the council could build a standard road and collect it from the owners, as a drain, it would be a good thing. Enough money is spent each year on the Division Road which would build a mile of good road; and if this were done, in a few years they would have a first-class road of it. It is very plain that good drainage is required. He was satisfied his township would be willing to do something to receive the county's share of the Government grant. Gosfield South abolished statute labor last year, levied one mill in its place, spent the money thus received on the roads and received far more benefit for it. His township had 3,000 days road work, and they had collected about $1,200 from the rate. If the old road work system were done away with it would be better for the roads. He thought if the designation of the roads were left with the local municipalities, it would be better but the scheme should be encouraged.

A motion was made by Councillors Brett and Coyle, for the appointment of a committee to draft a resolution crystallizing the views and opinions of the representatives. Such committee being composed of J. E. Stone, J. A. Buchanan, P. Coyle, W. Price and A. Reaume, of the county council; Mayor Brien, of Essex, Mayor Wigle of Leamington, and the reeves of the townships.

The motion carried, and at 12 o'clock an adjournment was made till 1.30.

The afternoon meeting was opened at 1.30, by the Warden, who at once called upon A. W. Campbell, the Commissioner of Highways. Mr. Campbell expressed his pleasure at again having an opportunity to visit Essex County and discuss Good Roads. It was his duty to visit different sections of the Province and explain any legislation in his department and give the benefit of his experience. For 12 years he has had charge of building roads, yet he did not consider that he knew all about road-making. There are 800 municipalities in the Province, and if he had to visit every one of them and look into their affairs it would take three years for him to get around to them all. He would like to visit them all but as he cannot, before going to a place he tries to find out what the people are prepared to do, if they are willing to spend more on their roads. If you feel that your methods are as complete and economical as they can be made, if you feel that you cannot spend more than you have been doing, then it is a waste of time to have the meeting.

In Essex County it is a little harder to make good roads than in the eastern part of the Province, on account of the flatness of the land, and the difficulty to drain it. In the past it has been of more importance to the people of the county to take up other matters besides roads. It was necessary first to get the lands drained, and the people have gone about that work first and expended thousands of dollars to carry out large drainage

schemes. Now they have large, serviceable outlets, without which it was impossible to drain the lands, and you are now looking after the other part —improving the roads.

In Essex County there are about 1,200 miles of roads and the system employed in the past in other counties has been employed here, viz., the statute labor system. That system in its time was the best that could be adopted for making roads in a new country. It was a good system in its day and he believed it wrong to flippantly find fault with it. He was not here to involve the people of Essex County in an expenditure that would unfairly burden them, but was present to advise with them for the betterment of roads so that in every year the work that is done will be permanent, and in a few years the county will have as good a system as can be made.

Many waste lots of time and hundreds of dollars in roadmaking without first studying the elementary principles of roadmaking. In one township in the county statute labor has been abolished, in another it is being commuted, while in others it is still in force. The plan should be uniform in the county. If Malden's statement is correct why not have statute labor abolished in all the townships. Some think by the county taking over certain roads that it would mean the building of some new roads. That is a mistaken idea. All that is wanted is to improve the roads that we have.

In the last ten years in Essex County there have been laid out on the roads 259,990 days of statute labor in addition to $245,711 spent in cash on the roads, a total of half a million dollars in cash or its equivalent. For this amount you should have over 700 miles of macadamized roads equal to the best macadam roads. Your roads are as bad as they were ten years ago, so that it is the people's duty to meet and devise some plan to remedy it. If a farmer is going to build a pigpen he figures out all the details of the building, while this far more important matter is neglected. Pathmasters differ as to the width a road should be. One year the pathmaster does certain work on the road, the next year a new man is appointed and he having different ideas about roadmaking covers up or tears down what his predecessor did, so that our system is one of building up, tearing down and building up again. The fellows who do not do their statute labor are the principal ones who uphold the old statute labor system.

The time has come when the people of this county must meet this road question fairly and squarely. They must rise above local and personal jealousies and go about it in a business way. Take you county plan, pick out your roads, figure the cost and spread the payment over a term of years so it will not be a burden. As the people of Essex County have laid out their drainage schemes so lay out your road schemes. If the half million dollars that have been spent in the county in the past ten years had been spent at once you would have had 250 miles of macadam road, at the average cost of $1,000 per mile. The drainage law applies to every person in the township, and so do good roads. The cost of the latter should be borne the same as in the former.

The Government set apart $1,000,000 for bettering roads, one-third of which amount is really paid by the cities. Then they leave it with the county council to form a plan so that the towns should pay their share. When the Act was under consideration, many councillors and county councillors were called in consultation. Some opposed leaving the matter entirely in the hands of the county council, so the Government made the measure an alternative one; if the county council do not take advantage of the grant the municipal councils may do so. The people have to the end of this year to say whether the scheme shall be taken up by the county or by the municipalities. Municipalities that qualify for the grant are subject to the same conditions as the county. He suggested that the reeves of the townships meet the county council at the June session, take the county map and agree upon a scheme. When the Government framed the Act they had in view that the roads should be better in proportion to the mileage of the townships. He would designate roads or pieces of roads that are the main arteries to the markets, make good, or better, the roads where the traffic is heaviest, leading to the business or market centres. A back concession can be taken, if wished and five miles of it made better. It would be preferable to have a connected system if you can make it so, but if not make the system so you can later make it a connected and complete system.

The Department ask that when the plan is formed and by-law passed, that a copy be sent to the Public Works Department. The regulations provide for the employment of a competent engineer. The certificate of the County Commissioner or engineer as to the completion of the work will be accepted,

as to the manner of doing the work and expenditure of money. If a road in the plan only requires to be drained to put it in good condition, that would come under the regulations. If he were asked what was required to better a road he would say, first drainage; second, drainage; third, drainage. Drain the foundation; place a tile where required in the low spots; put good ditches on either side with a good outlet, drain the surface by crowning. Commence on the important roads, then take up roads leading to them. Let the county take over 200 miles of roads and designate those. That will leave over 1,000 miles for the townships to look after.

The county councillors are elected by the ratepayers, are responsible to them and would be as anxious to have the work done right as the municipal councillors. Suppose this county raise $200,000. Of this amount, $23,000 would come from the Government, about $22,000 from the towns and villages and the balance would come from the townships. The county council with the township councils, could agree on the way to expend this sum, whether by acreage or assessed valuation. The increase in your rate would mean about $3 per year on an assessment of $3,000. The roads thus taken over would really be the roads that now receive the most attention from the township councils, so they could devote their time to the other roads. This extra tax might be met by commuting the statute labor on these roads at so much per day, and using that in paying off this rate. On 200 miles it would mean 5,000 days of statute labor which would more than half pay the county rate.

By having the money properly expended he believed it could be done so that the cost would not be more than 50 cents a year on a $1,000 assessment. Employ a good, practical man, not necessarily a civil engineer, to take charge of the building of the roads. In Hastings County they have a man who was formerly a contractor on a railway, and is a practical man in every respect. In that county they use gravel boxes that carry three yards of gravel and haul five of those by a traction engine, or fifteen yards, in a train. It costs about $5 or $6 a day for the engine, while if 15 teams were engaged at $3 a day, it would cost $45 to do the work.

Crushed stone roads in the eastern part of the Province were being built at $600 per mile where it costs more for material than it does in Essex. These roads are 8 feet in width, 10 inches deep in the centre and 5 inches on either side. He would use good clean gravel where it can be obtained. When gravel or stone is laid on a road, it should be rolled with a heavy roller. Before broken stone is put on the road, clean off the mud and put on the large broken stone with a layer of the fine dust, then roll it with a roller. Horse rollers cost about $90 a ton, so that a five-ton roller will cost $450.

One reason he would prefer that the county take up the scheme is, that they could purchase a heavy roller and other machinery and do all the work in a uniform way. The county council can do the work in a little more comprehensive way than if township councils would do it. They could arrange for better rates with the railways than a municipality can. The county can arrange for a better system of supervision. In Hastings County they have one supervisor for all the county roads. When the large roller is not in use it can be loaned or rented to the township or town to build their own roads. He advised getting the township and county councillors together as soon as possible, so they could form their plan and pass the necessary legislation at the June session.

Ald. D. H. Bedford of Windsor could not commit the council of Windsor to anything and could only express his personal opinion. For the benefit that would accrue to Windsor by the betterment of the roads in the northern part, the city should take much interest in the scheme and should assist in some way, contributing as much as either Essex, Sandwich East, or Sandwich West. He had always advocated that Windsor should help to improve the roads leading into the city.

C. E. Naylor wanted to know if the law provided that the township council might commute the statute labor on the lands along the roads improved up to $1 per day and use it in meeting the extra rate. Mr. Campbell replied in the affirmative. The amount in the commutation could not exceed $1 per day. Mr. Bedford asked the size of crushed stone best to be used on roads. Mr. Campbell said they should use large size stone for the foundation and crushed trap rock on the top. The foundation must be thoroughly drained.

Ald. Noble of Windsor wanted to know if there was anything that could be used as a top dressing in place of the powdered stone and that will not go into dust. Mr. Auld said an experiment was tried in Amherstburg last year by sprinkling crude oil on the fine crushed stone that was put on

Murray street in that town. The crude oil was brought from Pelee Island. That section of the street was the best in town this spring.

Calvin Cowan, councillor of Mersea, said his council were greatly interested in the scheme but were at a loss to know where they were at. His township council had come to the conclusion that they could take part of their share of the scheme and spend the money in their own township to the best advantage. He had also held to that opinion, but he would go back home with changed notions, and is now in favor of the county taking up the scheme, as they can do so to much better advantage and could purchase proper machinery. He understands the money can be spent in municipalities according to their acreage, and if that concession be granted, the objections made in his township would be removed and he believed the people would support it. The people of Mersea Township use the roads almost exclusively in their own township on account of having Leamington for a market town.

John Webster, ex-Reeve of Sandwich South, had always advocated having the townships co-operate with the county and take up a county scheme. He wanted to see the county council take up the scheme, and was satisfied the county councillors would carry it out to better advantage. With a county grant a few years ago of $200 they had graded six miles of Talbot street that is to-day the best section of that street. The money was spent judiciously.

W. S. Sunderland had come out to get advice and had written out a number of questions to ask but Mr. Campbell had covered the whole question thoroughly, and his questions had all been answered. He had not believed in handing the roads over to the county, but he was afraid he would have to change his views. He thought the old toll road from Amherstburg should be taken up. The town had paid $20,000 and Malden Township $6,000 to build that road.

Peter Corbett, ex-Reeve of Maidstone, thought the matter should be handled by the county. Thos. Wayburn said good roads meant money in every man's pocket who had any teaming to do. If he can only draw half a load on a bad road, he is losing money. He believed the towns should bear their share of the cost as they were benefited. John Hopgood advised the people to go slow about incurring any large expenditure.

The committee on resolutions at this juncture returned and presented the following resolution:—

Moved by Reeve Wilcox of Rochester, seconded by Reeve Peterson of Gosfield South, that, after hearing Mr. Campbell we approve of the Good Roads scheme and would recommend that a meeting of the members of the county council and of the representatives of all the municipalities, towns and cities meet at Essex at the call of the Warden, between now and the June session of the county council to discuss and decide whether the scheme should be taken up by the county council or township councils and also decide on the amount to be raised.—Carried by a unanimous vote.

O. J. Wilcox had no hesitation in saying that he was heartily in favor of good roads, but he would hesitate to agree to the issuing of debentures for $100,000 without first consulting his electors. J. A. Coulter was in favor of good roads, but could not say what the people of his township would say, though he thinks they are progressive enough to agree to a scheme for bettering the roads. Some years ago they gravelled the Malden road by statute labor and voluntary work by the people of township, and that road is one of the best in the county. He thought the resolution was proper as by that time they can get the feeling of the ratepayers in their townships.

Oliver Reaume was in favor of good roads. They have the statute labor system in Anderdon. He would favor letting the county take up the scheme and spend double the Government grant on the roads, but would oppose spending $200,000. The Government might be induced to make a further appropriation. He favored the county taking it up, but each municipality should have the say as to on what the roads money is to be spent.

C. L. Wingrove had studied Mr. Campbell's plan of building roads, and they met with his approval. Some of his people had an idea that they could not get the Government grant, but it seems quite easy to get it. He would not like to see the county fooled out of the grant.

Dr. J. O. Reaume, M.P.P., was most anxious to find out the feelings of the people of North Essex, so he could represent them to better advantage. The scheme is certainly a laudable one if it can be carried out, but it requires careful consideration. He had asked different members at Toronto and some did not consider it in the interests of the county to take it up. He found a lack of methods and systems in the townships of the county in doing road work. He can point to pathmasters who do their duty. He was anxious to see the roads bettered, but would ad-

vise the people not to be carried away with the idea that another million-dollar grant will be forthcoming.

Mayor Wigle of Leamington felt better than he did before hearing Mr. Campbell's address. He thought the committee had passed a sensible and reasonable resolution, but the next meeting should begin at 10 o'clock in the morning. Mr. Campbell deserves a great deal of credit for his address.

Mr. Auld had voted for the million dollar grant in the interests of the County of Essex, and he hoped the county would take advantage of it. He was glad the people were satisfied with the measure, and thought they pretty nearly understood the act now. He would favor taking advantage of the grant now, and spend the money this year.

Mr. Campbell explained clause 8 of the Good Roads Act, which provided for the certifying to the work and procuring the money. Any person who is competent to do the work will fill the bill so far as the Department is concerned.

M. Conn, Vice-President of the Windsor Board of Trade, was greatly interested in better roads. Windsor would encourage anything that was for the benefit of the city, and he thought would do their share. He thought $200,000 would be required to put the roads in good condition.

A. McNee was pleased with the whole spirit of the meeting. He didn't think the Government had gone far enough; the grant should have been five millions instead of one. In Michigan they are getting two and a half millions in taxes from the railroads. We should take advantage of what we have, and the railways should contribute more than they do. We have arrived at a time when we must change our methods in roadmaking. The question of free rural mail delivery hinges upon good roads, also the centralization of schools in townships.

Moved by Mr. Brett, seconded by Mr. Stone, that this meeting desire to place on record its appreciation of the very able and instructive address given by A. W. Campbell, Commissioner of Highways, and that the thanks of this meeting be tendered him for his visit. Mr. Brett as father of the resolution in the county council had brought about the meeting, and he had been rather anxious as to its outcome. He was pleased with the good turnout, and hoped that the good that might result from their attendance would more than compensate the delegates for the time spent by them. Mr. Stone was also pleased with the attendance and hoped the scheme would be taken up and carried out. The motion carried.

On motion of Mayor Wigle and Dr. Reaume a vote of thanks was passed to the chairman, who responded, and at 5.45 the meeting was brought to a close.

County Road of Lanark.

THE SCIENCE OF ROADMAKING.

Roadmaking is a science, a branch of engineering, the difficulties of which are not usually appreciated. It is a common expression that "anyone can make a road." Which merely indicates that the average man knows so little about road construction that he does not realize how much there is to know. If it is true that anyone can make a road, it

is also true that anyone can build a house, a bridge or a steamship. "Anyone" can do these things, but in most cases at a great waste of money and labor, and with very inferior results. For centuries in England, it was left for anyone to make the roads. It was not until McAdam and Telford appeared, but one century ago that the people in England became convinced that "anyone" could not build a road. This work was then placed in the hands of expert roadbuilders and the transformation has been nothing short of wonderful.

In too many townships of Ontario "statute labor" means that once a year the rate-payers gather to make roads under the direction of "anyone." They plow and scrape the mud and pile on a ridge of gravel, after violating every rule and principle laid down by Macadam. After doing everything Macadam told the people of England not to do, the result of this statute labor is called a "macadamized road."

Among the earliest roads of which we have definite information were those built by the Romans, chiefly as military highways, leading east and west to the remote provinces, from which arose the proverb, "All roads lead to Rome." So substantially were these roads built, of layer upon layer of stone and concrete, three and four feet in thickness, that many of them still remain, and are commonly believed by the peasantry of Spain and of other countries of Southern Europe, to be of supernatural origin. These roads were built at an enormous waste of money and labor, and, while of the greatest durability, they lack the first essential of modern construction—a properly balanced union of economy and efficiency.

For several centuries after the downfall of Rome, roadmaking became a forgotten art. In France during the eighteenth century, under the engineer Tresauguet, road construction was revived, but on very different principles from those followed by the Romans. The type of road build by the French engineer was that introduced into England by Telford, and consisted of a foundation of large stones, laid on edge and carefully shaped, upon which was placed a coating of finer broken stone. Early in the nineteenth century, McAdam advocated and constructed in England a still more economical design, in which the foundation of large stone was omitted, but greater care was given to drainage and roadbed. McAdam's system is that most commonly followed to-day, with a number of important alterations consequent upon the introduction of roadmaking machinery.

In the time of McAdam the best method attainable was to break stone by hand, which was then placed loose on the roadway and left for traffic to consolidate. The progress of consolidation was slow, during which a considerable amount of the stone was forced into and mixed with the earth subsoil, injuring the consistency of the road. Under present methods, by means of a crusher, stone is broken much more cheaply than it could be done by hand.

Stone dust and chips (screenings) are created in the process of crushing, which are used to fill the voids, instead of waiting for this to be produced by traffic, or allowing the clay or loam from beneath to be forced up among the stones. With a road roller the road metal is made thoroughly compact, forming a strong, waterproof covering over a firm subsoil. The result is that more perfect work is done in a few days and at less cost than the methods of McAdam or Telford would accomplish in several months. The main features of present day roadmaking, which are of recent introduction, are :

(a) The use of grading machines for forming the earth subgrade and open drains.

(b) The thorough drainage of the soil underlying the road so as to make a strong foundation.

(c) The use of a roller to consolidate both the earth foundation and the surface layer of stone or gravel.

(d) Where broken stone is employed, the use of a crusher to prepare the metal, instead of breaking the stone by hand.

(e) The screening of broken stone so as to grade it, for application to the road in layers according to size.

THE ROAD SURFACE.

The road surface of gravel or broken stone is, by many, supposed to be the chief part of the road. As a result of this impression, gravel and broken stone are frequently applied to the roads very lavishly, but only to be lost in mud in a year or so. Townships which at one time had an abundance of gravel, are now facing the fact that their supply is exhausted. The reason of this waste of road-metal is that the foundation of the road, the natural soil, has not been properly drained, graded and consolidated, to receive the surface covering; and also that this surface covering has not been cared for after being placed on the road.

To properly apply gravel or broken stone requires that, after providing for drainage, and grading and crowning the earth subsoil, this earth road shall be

placed in a smooth and compact condition, and the best means of accomplishing this is by the use of a roller. Having thus prepared the foundation, the gravel or stone coating should in turn be consolidated with a roller. In the absence of a roller, and depending upon traffic to consolidate the road, both the earth road and the metal covering should be kept in shape, chiefly by the use of a rake, until both are firm and compact.

A road surface of gravel or broken stone performs various services. The ordinary dirt road of clay or loam alone ruts readily, softens quickly after a rain and has little supporting power. A well-compacted layer of gravel or broken stone over it, distributes the concentrated wheel load over a greater area of subsoil; it does not rut readily, and affords good surface drainage; it gives a smooth, hard, wearing surface; water does not easily penetrate it so as to soften and reduce the supporting power of the subsoil.

The depth of gravel or stone to be used must vary with the quality of the material, the amount and nature of traffic on the road and the nature of the subsoil. A dry, compact and stony subsoil needs less metal than does a plastic clay, difficult of drainage. A definite rule cannot be laid down to accurately meet all conditions, but from six to twelve inches of well consolidated material will afford a sufficient range to accommodate most circumstances. Ordinarily, ten inches of metal should accommodate the heaviest traffic to which a gravel or broken stone roadway can be economically subjected.

Wagons with a hopper-shaped opening between the front and rear axles, are now made expressly for drawing gravel, and distributing it over the road. The opening of the hopper is controlled by a lever beside the driver. The metal can be distributed to any required depth, after a little experience, by regulating the extent to which the hopper is opened.

For screenings especially, in distributing them evenly over the stone, these wagons are particularly useful. A number of these wagons, coupled together, and drawn by a traction engine, affords one of the cheapest methods of hauling gravel or stone for a considerable distance, under certain conditions.

Teams and teamsters should be hired to haul gravel by the load or cord, not by the day, and the size of each load should be specified. Care should be taken at the pit to see that only suitable road metal is put in the wagons, and that clay, sod, large stone or very sandy material are excluded.

A notable defect of most country roads is the flat, or even concave surface. Others present the opposite extreme, and are so rounded up as to be dangerously high in the centre, making it difficult for vehicles to turn out in passing. Roads must be crowned sufficiently to shed water from the centre, to the open drains at the side, otherwise water will stand in the roadway, soak into it, soften and cause rapid wear, resulting in ruts and holes; but a crown higher than is necessary to properly drain the surface is also objectionable. The smoother and harder the surface of the road, the less crown is needed.

The amount of crown should not be more than sufficient to provide for surface drainage. A sharp crown tends to confine traffic to the centre of the road, and also in turning out, the weight of the load is thrown on one pair of wheels, in such a way as to rut the side of the road. The shape of the crown is a matter on which road experts differ, but with the class of material available for roads in Ontario, and the methods and plans of construction, a form as nearly circular as possible will be found serviceable, and most easily obtained.

From the edge of the open drain the graded portion of the roadway should be crowned with a circular rise of one inch to the foot from side to centre. That is, a driveway twenty-four feet wide would be one foot higher at the centre than at the side. This amount of crown may at first appear excessive, but with gravel roads and roads metalled with the quality of stone commonly used, is not more than enough to provide for wear and settlement consistent with good surface drainage.

The height of the road above the level of the adjacent land need not be greater than is sufficient to provide against the overflow of storm water, which should always be guarded against. The depth of the open drain must vary according to the amount of fall and the quantity of water to be provided for; also according to the sub-drainage needed and provided. When tile sub-drains are used the open drain can often be shallow, in which case the width of the graded roadway can be narrowed, there being no danger of accidents such as are caused by a deep trench at the roadside. The tile drains should be placed below severe frost, and usually a depth of three feet will answer.

ROAD DRAINAGE.

Good Drainage, and Good Roads, are, in effect, almost equivalent. A road that is built and maintained with a view to good drainage is almost certain to be a good road. If this is done, the road surface will be kept hard and smooth and sufficiently crowned, so that water will not lie on it in depressions or ruts, but will flow immediately to open drains at the side. These open drains will have a regular and constant fall to a free outlet. Further than this, the underflow, or subsoil water, will be removed, where necessary, by tile drainage. The method and extent of drainage must depend largely upon the character of the soil over which the road passes; clay, loam, gravel, sand, swampy, springs, flat, undulating, are all terms suggesting conditions that modify the plan of drainage.

Water should be disposed of in small quantities, along natural watercourses. If carried long distances and gathered in large bodies along the roadside, it gains force and headway, resulting in extensive wash-outs, and is in every way more costly to handle. It should be taken away from the roads as quickly as possible, for an excess of water is the great destroyer of roads.

The drainage usually found on existing roads consists of open ditches on each side of the graded portion, with a depth of about eighteen inches. They are frequently carried through rises of ground, past natural watercourses. Little attention is given to the regularity of the grade in the bottom, or to the amount of fall, as evidenced by the varying depths of stagnant water at wet seasons. The object of these drains was more to procure earth to raise the centre of the road above the water line than to lower the water.

A drain without an outlet is useless—or worse than useless. If there is not an outlet, the water is held in elongated ponds by the roadside, to soak into and soften the travelled roadway. This water is drawn up into the entire roadway by capillary attraction, just as a sponge will absorb water and hold it in all its pores.

The introduction of graders, wheeled scrapers and modern road machinery requires that a roadway should, in order to construct it economically without hard labor, be such as the implements will readily form. For this reason, deep, open ditches, with sharp angles and narrow bottoms, are not now suitable; but instead, a cross-section of road should show gentle curves, the rounded surface of the road not sharply defined from ditch. The latter should be about two feet wide in the bottom, where a wheeled scraper can work, and about eighteen inches in depth.

Too Flat.

The best practice does not direct that the old open drains should be deepened for the purpose of draining the subsoil. Deep, open drains are expensive, dangerous and unsightly, and the excavated earth generally does more harm than good to the road when used to round it up, especially if piled on top of gravel or stone. When the combined cost of construction and maintenance is considered, a tile drain laid under the bottom of open drains is cheaper and more serviceable.

It may be accepted as a general rule, that roads tiled without gravel are better than roads gravelled without tile. All roads except those on pure sand can be improved by tile draining. A single line of tile, if placed about three feet below the bottom of the open drain, if the graded portion of the road is about twenty-four feet wide, will accomplish nearly all that tile drainage will do. If one side of the

road is higher than the other, lay the tile on the high side so as to intercept the subsoil water as it flows down the slope. A four-inch tile meets most conditions, but the size will depend on the length of the drain and the amount of water to be carried away. Care must be taken to give the tile a uniform grade, so that there will be no depressions. If possible, give a fall of at least three inches in one hundred feet. The cost will be about fifty cents a rod. The work, if properly done, will be a permanent and substantial improvement to the road, and will save many times the cost by lessening the amount of gravel needed on the road.

Municipalities need not undertake to at once underdrain all their roads in this manner, following the one rule. The preferable plan is to place these drains where they are evidently needed most, in low-lying sections, where water is seen to remain longest on the surface in the Spring or after a heavy rain, where springs have a tendency to appear, or where the ground is found to be cold and wet during the summer.

The name "macadam" is commonly applied to any road surfaced with broken stone, and in this respect is a very unfortunate misnomer. It is the neglect to provide a dry subsoil that is the greatest cause of the unfortunate condition of roads throughout Canada to-day. Roads which are not well drained are but a repetition of the English roads as they existed before the time of Macadam—they are the roads which the system of Macadam displaced. A roadbed in which subdrainage is not sufficiently provided is the opposite of a macadam road.

The importance of drainage cannot be too thoroughly impressed. Clay in thick beds, when dry, will support from four to six tons per square foot of surface, according to the quality of the clay. If but moderately dry it will support from two to four tons only per square foot of surface. If the clay is wet and soft it will yield to almost any load. Gravel, if well compacted, forms a much stronger roadbed, is less yielding to the action of moisture, and for this reason, even for a thin surface coating, strengthens the road somewhat. But the real strength of the road must lie in the subsoil. Vegetable mold and alluvial soils are weak, having a sustaining power of only one-half to one ton per square foot, and for this reason it is well to remove such soils, securing if possible, a gravel, clay or sand foundation.

A dry subsoil becomes of greater necessity in a cold and humid climate, such as prevails throughout Ontario for a considerable portion of the year. The injury done to roads by frost is caused entirely by the presence of water. Water expands on freezing, and the more there is under a road and above the frost line, the greater is the injury. In freezing, the particles of soil in immediate contact with the water are first compacted. When room for expansion ceases within the body of the soil itself, owing to its saturated condition, the surface is upheaved. When thawing takes place, the subsoil will be found honeycombed, ready to settle and sink beneath traffic. It is, therefore, of the utmost importance that the soil should be relieved of all water of saturation as quickly as possible by under-drainage. The impassable condition of the roads during spring, often axle-deep with mud, is to be attributed very largely to a wet subsoil which has been honeycombed in this manner.

The making of a strong foundation thus resolves itself largely into a question of under-drainage, and the means whereby under-drainage is obtained must be adapted to the manner in which water finds its way under the road, and the nature of the soil. A soil retains in its texture, by capillary attraction, a certain amount of water. In the case of a plastic clay soil, which will absorb nearly one-half its weight and bulk of water, the water retained in this way may be the cause of injury. In the case of gravelly, sandy or other porous soil, it is necessary to remove only the water held by hydrostatic pressure in the foundation of the road. The effect of this is, that, with a clay subsoil, under drains are nearly always beneficial in securing a strong foundation, and are necessary for traffic of even moderate degree. With porous soils, on the other hand, the necessity and means of drainage will depend upon the height to which the water rises in the foundation, and the direction from which it comes. When a strong foundation is needed these under-drains should be three or four feet below the surface of the subsoil.

Their location with respect to the road should be varied with circumstances. The most effective type of drainage employed is a system in which there is a tile drain on each side of the roadway underneath the open gutters, with V-shaped drains at inter-

vals from the centre of the roadbed to the side drains. From this the scale descends to drains at the side of the roads only; then a drain at one side only, or in the centre of the road; then only an occasional drain at springy or damp points.

It is of advantage to understand the manner in which underdrains act in different cases. With porous soils, in which the water rises under hydrostatic pressure, the water enters the tile from below. Just as water rising in a vessel finds an outlet in the sides or flows over the top, so the underdrains supply the necessary outlet for this excess moisture at a proper depth from the surface; it "lowers the water line."

With clay the process is different. Absorbing and holding as it does, like a sponge, a large quantity of water, drains are less effective, but none the less necessary. The cracks and fissures which appear throughout the surface of a baked soil during the summer drought, afford a clue to the action of underdrains upon the soil. As the clay yields up its moisture, it shrinks, is torn apart. These fissures, commencing at the drain, spread in different directions, and each fissure thus becomes a new drain leading to the tile. This process goes on, the fissures become filled with sand, vegetable and other porous matter, so that they assume a degree of permanency, and in clay soils, underdrainage is more effective after several years than at first.

GRAVEL ROADS.

Gravel has been very largely used throughout Ontario for surfacing township roads, and the streets of towns and villages. Wherever this material is plentiful, clean, and of a good quality, it makes a useful and serviceable roadway, especially for light traffic. Many townships are using it lavishly and wastefully, apparently believing that the supply is inexhaustible, but a number are already discovering that they have very little left, and that they will be obliged to secure road-metal, either gravel or stone, by rail from outside their municipality.

Gravel consists principally of a mass of fragments of stone, rounded and worn, having been transported a considerable distance by water and ice, the pebbles representing the hardest and most durable bits of the rock from which they were detached. With it is commonly mingled a variable quantity of boulders, sand, clay, and earthy matter. The rounded, water-worn character of the pebbles composing the gravel does not permit as perfect a bond as is the case with a road covering of crushed stone, in which the sharp angular sides take a firm, mechanical clasp.

Distribution in Ontario

In the western portion of the Province gravel is made up principally of limestone, but in Eastern Ontario, it is more largely of granite, blue limestone, and harder rocks. While of a somewhat more durable quality in the eastern portion, it is more generally distributed in the western counties. Huron and Bruce are especially favored in the matter of gravel deposits, while it is very plentiful in Oxford, Perth and Wellington. Most counties have a moderate supply, but there are exceptions, as in Kent, Norfolk, Haldimand, Welland, Lincoln and Wentworth. Stone quarries at Amherstburg, on the Grand River, the Niagara River, and in the vicinity of Hamilton, help to make up the deficiency, but the absence of cheap roadmaking material has much retarded road improvement in Kent and in the Niagara Peninsula, following the rule, that land most desirable for agriculture is apt to be most deficient in materials for roadmaking.

In Eastern Ontario, while plentiful in many districts, gravel is totally absent from others, and is not at all evenly distributed. Where there is no gravel, however, stone is usually available, and numerous townships are supplying themselves with rock crushers. From the vicinity of Belleville on the Bay of Quinte, along the St. Lawrence to Cornwall and the Township of Charlottenburgh, thence north and west to Georgian Bay and the Ottawa River, stone quarries are numerous, while gravel, though not always plentiful, is apt to be of a superior quality. Where it is to be obtained within easy hauling distance, it is, undoubtedly, a most valuable material for use on country roads, and on many of the little-travelled residential streets of towns. In localities where gravel is not within easy hauling distance it will be advisable to consider the use of other material; since gravel, if not found in the immediate locality, and therefore expensive in transportation, will frequently be found less economical in final cost than a better, though higher priced, stone.

Selecting Gravel

The largest stones in the best quality of gravel should not exceed one and one-half inches in greatest dimension. Th remainder should be of varying sized pebbles, each in proper proportion from the largest to the smallest, so that there will be the least amount of void, and the fragments in contact with one another at as many points as possible. If there are large stones in the gravel, they are apt to work to the top under the action of frost and traffic, even after the roadway has become well consolidated. In the dry weather of summer, the moisture is evaporated from the surface of the road, the fine stuff contracts, wheels and horses' hoofs disengage the larger protruding stones, and from merely making a rough surface, they are soon rolling loosely on the roadway. With stone greater than one and one-half inches in diameter, it is difficult to keep the road from thus "unravelling," in the period of hot weather.

On the other hand, if the gravel is too fine, it is apt to partake of the nature of sand, and may not bind readily. Pit gravel is usually better than lake gravel, as the latter is smooth and water-worn, while there is a deficiency of fine material; the rougher and more angular fragments of pit gravel, and the presence of fine stuff in proper proportion, enabling the pit gravel to bind more perfectly.

While fine material, even a certain amount of powder, is of value in assisting the binding and cementing process, yet one of the most serious faults of gravel in Ontario is that it contains an excess of fine stuff, clay or loam. Clay and loam in gravel aid in producing a pleasant road when the weather is neither too dry nor too wet. They absorb water readily, and in rainy weather the bond dissolves, the road becoming soft and muddy. Containing so much water, the action of frost on clay is very marked, so that when clay is mixed with gravel, the road ruts easily in the spring, and the gravel may even be cut through.

Iron oxide, when coating the fragments of gravel to such an extent as to cement them together, is one of the best binders, and such ferruginous gravels make an exceedingly durable and waterproof road covering. A finely powdered silica, resembling clay in appearance, is an excellent binder. Limestone gravels, or others which contain fragments of certain kinds of shale, or iron-

The Rake is Needed.

stone, pulverize readily under the action of traffic and weather, and these form a dust, which is vastly superior to clay as a binder. For this reason a softer limestone, if clean, may be much superior to harder varieties of rock containing quantities of clay. The fine powder of certain stones, when wetted and compressed, forms a weak cement which causes the particles of gravel to adhere to one another with considerable force.

The test of actual use on the roads is the best means of determining the relative merits of different gravels, but in this, consideration should be given to length of time each has been in service, the care taken in putting them on the road, the attention to maintenance and repairs each has received, the nature of the soil on which each is laid, the manner of grading, draining, and preparing the foundation, and the amount of

traffic to which each is subjected. The sound made by metal tires in passing over the road is also a means of judging the quality of the gravel. A continuously smooth and gritty sound is most favorable; if the gritty sound is absent, the gravel contains too much earthy material, while an interrupted, intermittent sound, indicates the presence of large stones.

Finding and Purchasing Gravel.

In searching for gravel, the clearest indications are usually to be found along the banks of streams, where any extensive strata are apt to be exposed. A post-hole auger affords a convenient means of making tests for gravel over the surface of the soil, but the best implement is a simple form of drill. There are cases in which a gravel bed may be entered at the level of a stream bed, and water is thereby obtained for washing the metal by natural drainage, affording a cheaper means of freeing it from sand and earthy matter than by screening it. Gravel is still being deposited in drifts and bars by the agency of streams; this will be found to partake of the character of the pit gravel of the locality, but generally will contain less clay, although sand may easily be in excess. This is usually one of the best sources, as the gravel can be washed by natural drainage. Lake gravel is often a good metal, but varies greatly. It is apt to be slatey, and undesirable in quality. It will be free from dirt and clay, but may contain sufficient sharp sand to secure consolidation, especially if a roller is used. Gravel which retains a perpendicular face in the pit in the spring, and shows no trace of slipping when thawing out, may generally be assumed to be sufficiently clean and free from clay for use on the road without any treatment other than is necessary to remove stones greater than one inch and a half in diameter.

A great many townships buy gravel by the load. This is very much like buying water by the pailful instead of digging a well. Gravel should be bought by the pit, or by the acre, and where plentiful should be available at all times for any farmer who wants to increase the value of his land by improving the road past it. The Municipal Act provides for the expropriation of land for the purpose of procuring gravel, where the owner refuses to sell, or demands an exorbitant price. Especial care should be taken by councils to see that, prior to the performance of road work, the pit is stripped and the gravel treated if necessary.

Hauling and Treatment of Gravel.

Where sand and clay are in excess, these should be removed by screening, and the large stone and boulders should be broken. If there is a considerable proportion of the latter, a method which offers many advantages is to place a rock crusher with a rotary screen attachment in the pit, passing all the material through, thereby removing the earthly substances, and breaking the stones with one operation.

If the product is stored in elevated bins, the expense of shovelling into waggons is avoided. If the number of large stones is not great, it will be the cheaper plan to screen the gravel in the ordinary way; or, better, by a rotary screen propelled by steam, the large stones being broken by hand or used in the road foundation.

When being prepared for use on heavily travelled and important roads, it is specially necessary to remove the dirt from the gravel. For little-travelled roads it may be impossible to take the precaution to screen the gravel; and, perhaps, if the earthy matter is not in excess, screening may be omitted to advantage; it is necessary, however, to emphasize the point that this can be recommended for little travelled roads only. It is the stone, not the earthy material, which is needed on the roads. There is enough dirt always on the roads without paying for more. Nor should there be loose stones or boulders, as they work up and roll loosely under the feet of horses and wheels of vehicles.

When gravel is not screened, very much may be accomplished by care in selecting and taking it from the pit. In drawing gravel to the roads, it is frequently the case that teamsters wish to be in company with each other as much as possible. For this reason, when loading the gravel, while there may be room for only one wagon in the pit at the point where the best material is to be found, yet a dozen teamsters drive in and the wagons are filled with whatever stuff can be most easily obtained, whether gravel, sand, boulders or clay.

Another common cause of earthy matter and sod being mixed with the gravel is to be found in the practice of tunnelling under an overlying layer of soil, which gradually falls into the pit, is mixed with the metal, and is drawn with it to the road. This earth should be first stripped from the surface if it does not form too deep a stratum, or care should be taken as it falls to keep it from mixing with the gravel.

BROKEN STONE ROADS.

Broken stone roads are not necessarily "macadam" roads. Broken stone was used on roads long before the time of Macadam, but it was used in the same manner as a good many townships and towns in Ontario are using it to-day, and with much the same result. The roads are bad, and will remain so until they are drained, crowned, and graded, and cared for in the manner directed by Macadam, and by those who have succeeded in improving upon the methods of Macadam.

Broken stone, when of a suitable quality and properly applied, is a more durable surfacing material for roads and streets than gravel. Owing to the greater cost, it is used by towns and villages, and by those townships which have not a supply of gravel. As ordinarily used in townsh ps, broken stone gives less satisfaction than gravel, because the latter binds quickly under traffic owing to the presence of sand and clay. To get the best service from broken stone a road roller should be used to consolidate it; otherwise the stones will roll loosely for a considerable length of time. The feeling of councils with regard to its use is that it makes a passable road for a short time in fall and spring, but that a good dirt road for summer use is spoiled. Townships which have only broken stone for road metal, will receive decided benefit from the use of a steam or horse road roller, which will at once consolidate the stone, and make a thoroughly good and smooth road for all seasons of the year.

Quality of Stone

The different kinds of stones for macadam roads cannot be completely approached from the standpoint of names. Granite, limestone, sandstone, are rocks common in this Province, but to say that granite is better than limestone, or that limestone is better than sandstone, while true of the best qualities of each, may be quite incorrect as regards particular varieties, since a good sandstone may be preferable to a poor limestone or granite. The best stone for a macadam road is that which is hard and tough, not easily affected by the atmosphere, moisture, or the varying conditions of climate. The choice will generally lie between a cheaper and less durable stone near at hand, and a more costly but better stone from a distance.

A great proportion of the macadam roads in Ontario will be constructed of limestone, since this rock is the most common, quarries being within easy access of almost any part of the Province. In quality it ranges from that which is useless to that which is almost equal to trap. Limestone, if it is tough and close-grained, is an excellent material for roads on which the weight of traffic is not excessive. Some dolomitic limestones, while hard, appear to lack in toughness. Other limestones of a slatey texture, have not good wearing qualities, are rapidly disintegrated on exposure to the atmosphere, and should be avoided. Some limestones of an open, porus nature, yield readily in this climate to the effects of moisture and frost, merely turning into mud. The excellent binding qualities of limestone make up largely for a lack of hardness, a weak cement being formed by the dust, which adds very much to its durability.

All things considered, hardness and toughness to resist wear and atmospheric action, the relative desirability or rocks is ordinarily in the following order: 1, trap; 2, syenite; 3, granite; 4, schist; 5, gneiss; 6, limestone; 7, quartzite; 8, sandstone; 9, slate; 10, mica schist; 11, marble. Of these, the last four, sandstone, slate, mica schist and marble, are of little value in road-making except for the lower courses, when they are surfaced with a durable stone that will resist wear.

Testing Stone

In determining the best quality of stone for road purposes, there are four prominent destructive agencies which have to be considered: 1, the crushing of loads; 2, the grinding action of the wheels; 3, the blows from the shoes of horses; 4, climatic influences of air, water and frost.

With respect to the first three, a stone may have great hardness and splendid crushing strength, but at the same time be brittle, yielding readily to the grinding effect of wheels, and the blows administered by the hoofs of horses. On the other hand, a stone may be able to resist in a measure the second two wearing agencies, those of "abrasion" and "impact," and yet be so soft as to crush readily.

The fourth agency, the decomposing effect of the atmosphere, is one of very great importance. The denser stones, those which absorb the least water, are usually best able to resist the injurious action of frost and moisture. The weight, or specific gravity of a stone, is an indication of durability in this respect, the lighter stones usually being those which are most porous, and in consequence are subject to atmospheric decay.

Another feature which a good rock for roadmaking should possess is that, when crushed, it will break into a compact form. A stone that, in breaking, takes thin, flaky shapes, will not wear so long as one that breaks into cubical pieces, nor will it consolidate so readily in a roadbed, for a wheel, in passing over the side of a flat stone, will throw it out of place and loosen the stones adjoining.

The tests usually applied in determining the qualities of stone are those which indicate crushing strength; the power to resist impact and abrasion; the density, determined by the weight of the stone; the amount of water absorbed. While elaborate trials may be made, a practical man can judge of the qualities of a stone by applying simple tests; by breaking the stone with a hammer; wearing it on a grindstone; crushing it in a blacksmith's vice; scratching with an iron nail; breaking small pieces with the fingers. By such simple means, a general idea of the stone can readily be formed, but no test is so conclusive as actual wear on the road.

Field Boulders

Broken stone produced from boulders has been objected to as road metal on various grounds. The rounded sides do not permit consolidation with the minimum of vacum. If they have been exposed to the atmosphere the boulders are apt to be decomposed, are soft and will crumble readily. The mixture of different kinds of rock on the road surface, some hard, some soft, permits unequal wear, and produces a rough surface.

While these are defects which certainly are not to be overlooked in the choice of a road metal, boulders nevertheless, constitute a very valuable material for the construction of a road, particularly in localities where they are plentiful and gravel or bed rock not readily obtainable.

In selecting field boulders, care should be taken to discard all rock which shows signs of having "weathered," or having been decomposed by the action of the atmosphere. Sandstones and granites are peculiarly subject to this disintegration, while soft limestones are very common. Rocks which should be condemned from this cause are those which crumble readily under successive blows of a hammer, or which show iron stains when broken. A little experience will quickly teach a judicious roadman to detect the stone which is unfit for road purposes.

Freighting Stone

Railway companies have shown a desire to assist in the building of roads, especially those leading the traffic to their own lines, and in some instances have delivered the material free, in others not charging more than half freight rates. When they are permitted to carry the material at slack seasons, they have expressed a willingness to do the work at actual cost of hauling, which would place some municipalities in a position to procure first-class material at even less cost than can others where material is considered plentiful. In this way, too, many towns and cities now using gravel of an inferior quality would be enabled to use a first-class quality of durable material.

COMMON EARTH ROADS

Earth roads, having no surface covering of gravel or stone, but being merely a wagon track more or less graded and drained, are to be found in every township of the Province. Some townships (and the condition extends over a few counties), have not a local supply of gravel or stone and in consequence they have practically nothing but earth roads. There is now no township in the Province where this condition, in view of existing opportunities, need continue. The pioneers of this country, who toiled so strenuously to open and make earth roads through the forest, did not believe that their successors and descendants would rest content with so inferior a type of highway. If the people of to-day would put forth but half the effort made by the first settlers, the extent of earth road would very quickly, in all the older parts of the Province, reach more reasonable proportions. Gravel and broken stone can everywhere be procured cheaply by rail, and by taking proper precautions in construction and maintenance, a great deal of waste in using these materials can be overcome.

Where earth roads are suitable, it is to be said that for six months of the year they are often as good a driveway as could be desired for light travel. In order to extend the usefulness of an earth road the greatest care must be taken to see that drains and culverts are placed wherever needed, and that they are always in good working order. It should be well crowned, or rounded up, so as to shed the water freely to the side ditches; but in making this crown, sod and vegetable mould should be carefully excluded. A great deal of

injury is done to this kind of road by running a grading machine along the edges, bringing loose stones and sod to the centre. This material should be thrown outwards and across the open drain. Under-drains should be used judiciously; while a complete system may not be used, tile drains should at least be placed where the water does not leave the side of the road early in the spring, or wherever the ground appears to be continually damp. If open drains are kept in good working order, and if the road is properly crowned, its condition in fall and spring will indicate the points at which tile drainage is most needed.

Earth roads can be materially improved for summer travel, by passing a grader or planer lightly over them early in the spring, before the ground has become hard and baked by the sun. It is much more satisfactory to make a road good by the use of machinery than to wear it down by travel. If a grader is not available for this work, a second-hand railroad rail, one weighing from 50 to 70 pounds per yard, can be dragged by a team of horses up one side of the road and down the other with excellent effect; one round trip is usually sufficient. A steel I-beam is equally as good. The object of this treatment is to smooth down the ridges and fill the ruts and hollows. The blade of the grader, or the rail, should be kept nearly square across the road so as to carry a sufficient amount of earth before it to fill depressions. It is most important that this work should be done while the ground is slightly moist.

It is not advisable to repair holes in an earth road by filling them with gravel or broken stone. The latter materials do not wear down so rapidly as the earth around them, with the result that they become bumps or ridges, and the effect is to make two holes where there was originally only one.

Nearly all roads in Ontario have at one time been "dirt" roads. By a process of evolution some have become gravel or broken stone roads. A dirt road nicely crowned and well drained will make an excellent foundation on which to place a layer of gravel. A driveway which has passed through an apprenticeship as an earth road, and has, during that time, had due attention given to its drainage requirements, will have indicated the points at which open drains, culverts, and underdrains are most needed. With these provided, gravel can be applied to the best advantage.

Townships which feel compelled for the present to use earth roads only, because of the absence of a local supply of gravel or stone, should not think that the more primitive means of making these roads, and the old-time systems of road management are still suitable for them. If this class of road is to be maintained, there is all the more reason that they should be kept in good repair, and that the most efficient and economical system of doing this be adopted. To this end, road management should be placed in the hands of from one to four commissioners, who should have charge of all road machinery, and who should send the graders and planers over the roads as often as necessary to keep them smooth, to keep the ruts and wheel tracks filled up, and holes from forming. If pathmasters are retained, they should be required to act only in opening up snow roads, statute labor being devoted to

A Colonization Road in New Ontario.

this purpose ; if not required, it might be allowed to lapse for the year. For ordinary road maintenance, and the care of the earth roads, a special rate should be levied with the regular taxes, to be expended by the council and the road commissioners. In all respects, the model system of road management being adopted in numerous townships, is fully as well adapted to common earth roads as to the more permanent gravel and stone roads.

SWAMP ROADS

Roads passing through swamps are often found difficult and expensive to construct and maintain. This arises from the fact that the soil is usually a decayed vegetable mould, always soft and mucky when wet—a condition maintained by the lack of drainage. The chief difference between a swamp road, however, and one on high land, is the matter of drainage—a complete proof, if other evidence were lacking, that the most necessary rule to be observed in making good roads is to provide good drainage.

In making a road through a swamp, every opportunity should be taken to carry the water away from the roadside. If this can be be perfectly done, it will cease to be a swampy road, in spite of any difference in the quality of the soil. It is too often supposed that, by throwing up a sufficiently high grade, and piling on a great quantity of gravel, a permanent road must result. This may succeed in some instances, but conditions are rare in which it does so, unless, at the same time, good drainage is provided. Pending the time when sufficient drainage can be had, the best that can be done is to lay a corduroy foundation, on this place a covering of earth, and a surface coat of gravel or broken stone. Rather than use the black vegetable mould, which becomes mucky when wet, it is advisable to cover the corduroy with clay loam, a gravelly loam, sand or clay. Sand, when slightly moist, makes a good foundation. If the case is one in which the road passes over an extremely boggy ground, a good bottom can sometimes be made by throwing in a thick matting of willows and other shrubs and branches, on which to place the covering of earth, then gravel or stone.

HILLS

Road allowances in Ontario very largely follow concession and lot lines, without regard to the suitability of these lines for the location of roads. As a result, by unnecessarily crossing swamps, hills, and rivers at unsuitable places for bridges, the expense of making and maintaining the roads is much greater than it otherwise might be. What is of equal consequence, the roads, in spite of the added expense, are not so well adapted to traffic as they would be if laid out with regard to hills and other topographical features. As a rule, the most perfectly located roads in the Province are found among those known as "trespass" roads. They follow Indian trails and the paths first made by the early settlers. They are usually on high land, with a firm soil, avoiding swamps and going around steep hills. The general condition of the older part of Ontario is flat and rolling, so that road location with respect to hills is not so important as in a more mountainous country. In Northern Ontario, where the land is more broken, road location is a matter of more general necessity.

The farmer prefers to have all his fields of rectangular shape, as they can be cultivated more easily than when outlined by circular or irregular lines. There is a disadvantage, too, in having an estate cut into separate sections by diverted highways. These are obstacles to the proper alignment of roads in long settled and populous districts, but present little difficulty in new portions of the Province. However, it is usually very much more in the interest of a property owner that the roads leading to his farm should be good and easily maintained, than that his farm should be in a compact block, with the roads to it impassable during a portion of the year, and even then expensive to build.

It is desirable that a road between two points should be as direct and short as possible. But a road is not necessarily shorter because it follows absolutely one pointing of the compass. The line followed by a vehicle, leading up the hills and down into the valleys, may be no shorter, nor, perhaps, as short, as a diverging route, following comparatively level ground; just as the distance from one end of the diameter of a sphere to the other is the same whether measured vertically or horizontally around the sphere.

Not only may nothing be gained in point of directness by following the line of the original survey, but there is to be considered the greater horse power required to move loads up and down

the hills, demanding, too, a greater expenditure of time. The steepest and largest hill governs the size of the load that can be hauled over the road.

Directness should frequently be sacrificed to obtain an easy grade, and to avoid expensive construction over bad ground, cuttings, fills, bridges and excessive grades.

Roads should not be absolutely flat in any direction. A certain longitudinal slope, at least six inches in 100 feet, is requisite to carry the water out of the drains and wheel tracks. A desirable grade will not exceed a rise of two or three feet in 100, as at that slope, which is the "angle of repose" for wagons on macadam roads, a horse can trot down without danger or injury. Hills should not, on much travelled roads, exceed a rise of eight feet in 100, or about one in twelve. When greater than that, they are a hindrance to traffic and to the free use of the road.

The expense of building a highway is materially increased by steep grades. A moderate divergence of numerous highways in the Province would do away with many expensive and unsatisfactory cuts and fills, and with a large number of bridges. The unsuitability of the soil also, if low-lying, swamp, or composed of vegetable matter, may render advisable a change of location in favor of a course which will offer a firmer and more easily drained subsoil.

Councils are authorized to alter the location of roads by the Municipal Act, in a manner fair to all parties; and it is advisable that this power be judiciously used whenever circumstances render it practicable. Opposition will no doubt be offered in some cases by the individual property owner affected, but councils representing the general public have a responsibility resting upon them which should not be overlooked in a matter so important.

Each hill should be brought to its permanent grade, as far as possible, at one time. If reduced a small amount year after year, the grading is apt to be destroyed in a large measure by rushes of water each ensuing wet season. The roadway being annually filled or cut settles slowly, and is apt to become almost impassable in fall and spring. Hills should be taken up for improvement consecutively, the worst or most necessary first, and they can then be permanently gravelled or metalled with broken stone.

The cost of keeping hills in repair is frequently much increased by rushes of storm water, occasioned by the practice of carrying water long distances in open drains, and finally pouring it over the hill by the roadside. If the hill is steep, and a cut has been made, the water is not, and very often at the time of spring floods and freshets, cannot be kept in the open drain, and so is allowed to make a channel of its own down the centre of the road. This condition is the common result of not disposing of water in small quantities along natural watercourses. No water should as a rule be allowed to pass over the hills by the roadside, except that which naturally falls on the surface of the slope. Provision should be made for the disposal of water in the drains back of the hill, by carrying it through private property, under the authority of the Drainage Act, if necessary. Property owners, however, should understand the wisdom of permitting drains to be constructed across their lands when the benefit to be derived is not only better roads, but better drainage of their own fields.

The crown of a road on a hill should be slightly higher than is needed on level ground, a rise of at least one inch to the foot from side to centre being advisable for gravel roads. The crown must be sufficient to draw the water to the side gutters, and to do so, it must be sufficient to overcome the tendency of the water to flow directly down the hill, following the line of the wheel tracks. If the water commences to take the latter course, the wheel tracks are quickly deepened to ruts, stones are loosened or protrude, and the road becomes roughened and channeled.

Underground currents of water often find outlets on the hillsides. If any of these springy places occur under the roadbed, it is necessary to tap them at a good depth below the surface with tile drains. In such cases, tile drains will be needed under the open drains at the sides of the road, and the blind drains may then be carried diagonally across the road into the side underdrains. The open drains will sometimes need to be protected with cobble stones, if the hill is long or subject to damaging rushes of water.

Roads passing along the sides of hills are frequently softened and injured by the soakage water from high lands. This water should be intercepted before it passes under the road, by a drain along the side of the roadway next the hill. Tile should be used, if possible, instead of a deep open drain, and the trench filled with gravel, stone or other porous material to more readily intercept and absorb the soakage water.

The protection of the sides of cuttings and embankments should be skilfully attended to. It is very common to see these washed away in places

after a heavy rain, or after the spring thaw; the sides of the cuttings settle into and fill the open drains, and the water is forced into the road; the sides of embankments wash away, leaving dangerous holes in the road. The tendency is to make cuttings and embankments too steep, with a desire to do the least possible amount of earth work.

The stability of earth slopes is endangered by the action of air and moisture, especially by alternate frost and thaw, and depends upon the care with which water is drained away. A certain amount of moisture increases the strength of the slopes, but too much acts like a lubricant, and reduces the earth to a semi-fluid condition. Clay retains water and becomes pasty. Sand, if in a basin of water-holding earth, becomes a quicksand and is completely unstable. A mixture of sand and clay, the former favoring the access of water, and the latter preventing its escape, is at times the most difficult case to deal with. There is a certain "angle of repose," at which the tendency of earth to slip is overcome. This angle varies with different kinds of earth, under various conditions of moisture. Wet clay is troublesome, and an angle of sixteen degrees is sometimes needed to secure it. Well drained clay, however, will rest at an angle of forty-five degrees, or a slope of one to one. With average gravel and compact earth, a slope of one to one is a safe angle, although first-class gravel will retain an almost vertical face for a considerable time. Sand varies greatly, "water sand" being better than wet clay. Dry sand usually needs a slope of one and one-half to one. Rules of this description cannot be laid down with complete accuracy, but serve to indicate what is to be expected with different soils. The qualities of soils are so variable that it is advisable to learn by observation what slope is needed for a particular piece earthwork.

The natural form of an earth slope when in permanent repose is a concave curve, with the flattest portion near the bottom. There is a careless tendency to leave the slope rather in the opposite form, with an outward curve. Convex, or straight, slopes will invariably slip until the natural form is obtained, and in cuttings and embankments approaching ten feet in height, care given to a proper construction in this regard is always profitable.

A dry stone wall at the foot of an embankment or cutting will protect the drain from slipping earth. A coating of sod is one of the best protectors of the slope, and a few inches of vegetable mould over the surface, with a liberal sowing of grass seed, is a measure sometimes adopted.

REPAIR OF ROADS

Cheap roads are not those which have cost least for first construction, but those which cost least after a term of years. True economy in regard to roads requires that they should be kept in repair. Roads, after being properly built, should never get out of repair. They become so only by neglect. A smooth road, one with an even surface, will last much longer than will a road that is rough. Everyone has observed the hollows and pitch-holes formed on both sides of a wooden culvert or bridge projecting above the surface of the road. These pitch-holes form because every vehicle crossing the bridge drops down with a heavy jolt. Shallow at first, the deeper the holes become the more rapidly they increase in size and depth, because the pounding action of the wheels increases with the depth. Water collects and remains in these holes, and assists the wearing action of the wheels. The same process of wear is going on at many places in the road, other than at bridges and culverts. Wherever there is a roughness of any kind, a projecting or loose stone, a soft or hollow spot in the road, there is the same pounding action of the wheels, assisted by the collecting of pools of water, which lie in every depression. In the spring of the year, on roads which have been drifted, and on which the snow lies unevenly, the shallow places melt first, leaving the gravel or stone road exposed in spots, with mounds of snow on each side. Here the same action goes on. Wheels drop into the depressions kept soft by the melting snow. Pitch-holes commence, and a few days of traffic breaks up the road, and does a great amount of injury.

Roads should receive constant attention. This is the most economical and satisfactory system of making repairs. Repairs should be made, not once a year, nor twice, but as soon as signs of wear appear. Special attention is needed in early spring and early fall, as at these two periods much can be done to prepare the roads for the ensuing seasons of particularly severe conditions.

Ruts should not be allowed to form in a gravel or stone road when once properly constructed, but the material should be kept in place by a constant use of the rake. This is especially necessary if gravel or stone is placed loosely on the road and left for traffic to consolidate. Settlements and hol-

lows should not be allowed to hold water and create pitch-holes for want of a load of metal. Drains should not be allowed to become obstructed, thereby saturating and softening the whole roadbed. Culverts should not stand full of water to be burst by the expanding ice because of neglected outlets. An almost inexhaustible list of these everyday occurrences could be mentioned, which in themselves apparently trifling, become in the aggregate of very great importance. Roadmaking is made up of details none of which can be overlooked, except at a loss.

The overseer should give immediate attention to all emergency work rendered necessary by washouts, etc., either by personal or hired labor. He should be able to send a man over the roads as often as necessary to repair the effect of ordinary wear. Better still, a man should be employed to devote his whole time to a certain mileage of roads, to make repairs as they become necessary.

Where scraping is needed in the early spring.

Every farmer, too, should appreciate the value of good roads sufficiently to voluntarily devote time to the roads passing his property, rather than to permit them to become bad or impassable because of neglect.

Where a council, as is commonly the case, provides materials, gravel, tile, etc., for road maintenance, out of the general funds, one man with horse and cart, and help when required, can keep in repair ten miles of gravel or stone road, at a cost not exceeding the statute labor along the road commuted at one dollar a day.

It is one of the great advantages of the new system of road management being adopted by townships and counties, that men can be employed to work on the roads whenever and wherever needed. Neglect to keep the surface of a road smooth and in repair permits it to break up badly in the spring and fall, and the gravel or stone is largely wasted, being mixed with the mud from beneath. When this occurs a comparatively great expenditure is needed to make the road as good as before.

THE GRADING MACHINE

Road graders are one of the most important and useful of modern inventions. They have effected a great saving in the work of making and repairing country roads, and have reduced the cost to a considerable degree.

A few years ago the most pretentious roadmaking implement in any of the township municipalities was the drag scraper. The most widely used of the more modern implements is now the road grader, and this has almost revolutionized the cost of preliminary earthwork, while it is exceedingly useful in the repair of old roads. The majority of townships have only one, quite a number have two, while others have three and even four. With about three hundred in all throughout the Province, the outlay for graders, at an average cost of $250 each, represents a total investment of $75,000.

Road graders are now so commonly used in the construction and repair of roads, and their utility is so generally recognized, that it is scarcely necessary to urge their adoption. They are modern, labor-saving implements, which do their work better and more cheaply than can be done by hand, and that nearly 300 townships of Ontario have purchased them is forcible evidence of their value. It is not their use which it now seems necessary to urge, but rather there is need of guarding against their misuse.

Councils have too often rested content with merely buying a grader, satisfied that in so doing they have done

their whole duty. Unfortunately, the grading machine is not possessed of intelligence; it does not know when or how a road should be graded. So that, unless a method is established, and unless a capable man is engaged to operate it, the grader is likely to give but little service.

Roads Have Been Ruined

Road graders are of much use in the repair of old gravel and stone roads, in restoring the crown, but, unfortunately, it is no exaggeration to say that miles of roads have been ruined by misuse of graders in this work. Old roads are commonly flat, sometimes concave, with square shoulders at the side. In repairing these shoulders there may be a small amount of stone which has been crowded out by the wheels of vehicles, and which it is safe to draw again to the centre of the road. On no account should the square shoulders at the side be drawn to the centre of the road. These shoulders are composed of earth and sod, and if placed on top of the old gravel or stone foundation will merely turn to slush in wet weather and utterly ruin the road. The only way to repair such roads is to cut off these shoulders, throwing them away from the road across the open ditch, if necessary, and then to restore the crown by placing a coat of new gravel in the centre of the road. This earth removed from the roadway may be used in filling an adjacent ravine, the approach to a bridge or culvert, for levelling the sides of the road allowance or in numerous other ways that local conditions will suggest; and it can often be handled most conveniently by means of a wheeled scraper.

Use When the Ground is Moist

For the proper management of a grader, arrangements should be made every spring to have the grader ready and in use as soon as the ground is sufficiently dry. The soil is then in its best condition for manipulation, having been mellowed by frost; the roads are rough and most in need of treatment. Roads which are properly graded early in the spring are at once compacted by traffic, and they will remain in their best condition all summer. If the work is left until late in the season, clay soils become baked and hardened, difficult to handle, and rough when finished. Sandy soils if loosened up late in the year will be much more dusty than if treated early in the spring, when they are damp and readily compacted by traffic.

Plan the Season's Work

The township road commissioners, councillors or a committee of the council (according to the local system of road management) should go over the roads early in the year and determine what grading is required.

This work should be staked out according to the definite width and dimensions of roads as required by township regulations. The grader, when it commences in the spring, should proceed to each piece of work consecutively, and should be in use continuously until all the grading is done for that year.

At the present time it is customary for the grading machines to go here and there over the township without method—one day on one side of the township, next day on the opposite side, then to another distant part, backward and forward, wasting a considerable part of the wages of men and teams in moving from one part of the township to another. By following a well-considered schedule the cost of moving the machine between the different pieces of work is reduced to a minimum.

Some distinction should be made between the grading of new roads and repair of old roads. Where the roads are being metalled from year to year with gravel or broken stone, it is not, as a rule, advisable to grade a greater length of road than can be gravelled or macadamized the same year.

An Active, Energetic Operator

One of the first essentials in providing that the roads will be properly graded is to select the right man to operate the grader. He should be active and energetic, with some mechanical experience; one who will take an interest in his work, who will make a study of roadmaking and who will be willing to follow the instructions given him by the township road commissioner or councillor having supervision of the work.

Employ a Permanent Operator

When such a man is found he should be engaged from year to year so that his growing experience will render him more efficient. There are many townships which do not employ a regular operator, but instead allow the grading machine to be handled by anyone and every one. In some cases it is even passed around in the performance of statute labor from beat to beat. Managed in so careless a manner, a grading machine will be a source of disappointment only.

Use the Horses for the Season

The same horses should be used in operating the grader for an entire season, at least. "Green" horses are very awkward, will not pull together, waste much time, and even a reliable man as operator cannot, under such circumstances, perform good work. It is a great waste in many ways to attempt to use a grading machine with horses provided, as is sometimes done, as a part of statute labor. Horses used continuously become accustomed to the work, to each other, to the driver, and will produce much better results.

Traction Engine in Place of Horses

Some townships, instead of horses, use a traction engine. Where one can be rented from a local thresher, it can usually be obtained very cheaply in the early part of the year. Where a considerable stretch has to be graded without turning, as in cutting off the shoulders of old gravel roads, a traction engine is much preferable to horses. It is more steady, and does not stop to rest.

Plan of Road

The township regulations as to the width and dimensions of road should be closely followed in grading. These generally provide for a width of twenty-four feet between the inside edges of the open drains on roads of greatest travel, twenty feet on roads of moderate travel, and eighteen feet on roads of least travel. A rise of from half an inch to one inch to the foot, from the inside edge of the drain to the centre of the road, is ample crown for a new road, after the gravel or stone has been placed on it. More than this is unnecessary, and an injury. There is a tendency in the use of graders to crown roads excessively, and this should be guarded against.

Extent of New Road to be Graded.

Where gravel or stone is regularly used for surfacing roads, only such an extent of new road should be graded as can be metalled and otherwise completed in the one summer. If this is not done, the work of grading has practically to be done over in many cases before gravel can be applied, as the road will be so much cut by traffic and washed out by rains and freshets of the ensuing wet seasons. In addition, the road is left in a very soft condition, readily turning into a deep slough of mud. The ideal method for making a good road for traffic, and for conserving the road metal, is to roll down and consolidate the grade as left by the grader. On this should be placed a layer of broken stone, and this in turn rolled down for traffic.

Cuts and Fills

Wheeled scrapers are a valuable aid to roadmaking when dealing with earthwork, particularly in cutting down hills and using the earth to fill low places.

They afford the most economical means yet invented of moving earth short distances, and these, with road graders and the well-known drag scrapers, are the chief implements for dealing with earthwork on country roads. By their use, the grading of roads can be reduced to less than two-thirds the cost where shovel, pick and wagon are required. Wheeled scrapers are especially useful where the earth has not to be moved a distance exceeding 200 feet. They are useful for making open ditches, but require that there should be no shoulders on the road, but only easy slopes, and that the bottom of the ditches shall be about two feet in width. The cost is $40 or $50 each.

THE ROAD ROLLER

A number of townships in Ontario report the use of horse road rollers in constructing their roads. Counties having county road systems either have steam rollers or are about to purchase them. Numerous towns and cities of which a list is given use this, the most valuable of modern roadmaking implements.

For economical, durable and serviceable roadmaking, a heavy roller is indispensable. A road should be sufficiently smooth and compact to shed the water readily to the side gutters. If the gravel or other road metal is dropped from the wagon loosely on a soft earth foundation, water passes into the subsoil as through a sieve. Wheels passing over the road when in such a condition at once sink into and rut not only the gravel, but the earth beneath. Water is held in the ruts, and each succeeding vehicle renders their condition worse. The road is less durable, since the gravel, being mixed with the earth from beneath it, contains, when finally consolidated, a dusty, easily-worn surface.

The consolidation of loosely spread stone or gravel by traffic is a slow process, causing much inconvenience to

travel, during which the earth of the subsoil becomes mixed with the stone. Earth intermixed with stone prevents the strong mechanical bond which clean metal will assume when the stones are wedged one against the other by a roller. The particles of earth, when wet, have a lubricating influence on the stone, and, under the action of wheels the surface is more readily broken up. By the use of a roller the earth subsoil should be first thoroughly consolidated. The stone should be placed on this foundation in layers, and each layer well compacted. In this way a smooth, durable, waterproof coating of stone, free from earthy material can be laid over a firm foundation. A road should be made for traffic, not by it. To leave loose gravel and stone in the roadway is neither an agreeable method of constructing a road, nor will it produce the most durable road.

Among the benefits to be derived from the use of a roller on country roads are:

(1) A good road is at once made for vehicles.

(2) A dirt track is not made near the ditch, to avoid a pile of loose stone or gravel, so that the side of the road is not cut up in such a way as to interfere with surface drainage.

(3) Traffic is not inconvenienced in the fall by being forced to drive through loose gravel or crushed stone.

(4) The gravel or stone is not forced down into the subsoil by the wheels and feet of the horses, is not churned and mixed with the earth, and there is in this way a great saving in the amount of metal needed on the road.

(5) There is a great saving in manual labor, and repairs are more readily and effectively made.

An impediment to the use of heavy rollers in a good many townships is the insufficient strength of bridges and culverts; and while valid in some instances, the objection is liable to exaggeration in others. Weak wooden bridges and culverts could in many cases be temporarily strengthened sufficiently; while in others, they could be entirely avoided by first completing the rolling on one side and then passing around a block or so to commence work on the other.

There are different classes of rollers. The horse rollers weighing six or eight tons will do fairly well if a steam roller cannot be afforded, but the horse roller is not sufficiently heavy for the best results. It has to be used much longer than the steam roller. The feet of the horses, in exerting sufficient strength to move the roller, sink into and disturb the road metal, and injure the shape and quality of the roadway, while on hills it is at a disadvantage.

The steam rollers are of various weights, ranging from eight to twenty tons. Rollers of fifteen tons weight are those generally used by the towns and cities of Ontario. The cost of horse rollers is usually about $90 per ton, or from $400 to $600 each. Horse rollers are, however, generally so constructed that the weight may be increased by iron castings; so that a roller of five tons may be made to weigh about eight. Steam rollers cost about $3,000. For operation, a horse roller, with two teams, will cost $6 per day. A steam roller will cost $10 a day, including interest and depreciation, but will do several times the amount of work done by a horse roller, so that the saving in operation is considerable.

The amount of rolling which can be done in a day varies according to the

quality of metal used, the kind and amount of binder, the thickness of the layer of stone rolled, and the weight and type of roller. With broken limestone, rolled by a twelve-ton steam roller, the amount of stone compacted will average between forty and fifty cubic yards in a day of ten hours.

The objection to the purchase of steam rollers by townships is their cost. It is, however, but a matter of time when this will be overcome. The price may or may not be reduced, but in the meantime an appreciation of good roads will grow, the value of good roads will be more realized, rural population, wealth, and traffic must increase, so that all influences will tend toward the gradual use of steam rollers by townships. Counties, towns and cities are finding that they must use them.

STEAM ROAD ROLLERS IN ONTARIO.

Municipality.	Year purchased.	Weight (tons.)	Cost.
			$
Belleville	1898	15	3,000
Berlin	1898	15	3,100
Brantford	1901	15	3,200
Brockville	1894	17	4,000
Carleton Place	1901	10	3,000
Chatham	1898	12	3,135
Cornwall	1898	16	3,000
Galt	1896	15	2,700
Guelph	1902	15	3,250
Hamilton	1898	15	3,300
	1900	16	3,250
Ingersoll	1898	12	2,900
Kingston	1884	18	.....
Lindsay	1903	15	3,250
London	1895	15	3,000
Niagara Falls	1897	12	3,650
Niagara Falls Park Com'sion	1903	7	2,300
Ottawa	1885	15	3,000
Owen Sound	1898	15	3,000
Pembroke	1902	15	3,250
Peterborough	1899	15	2,800
Renfrew	1899	15	875
St. Catharines	1897	12	3,600
St. Thomas	(1900?)	12	.....
Smith's Falls	1900	17	3,100
Stratford	1897	15	3,800
Toronto	1895	15	3,050
	1900	10	2,373
Welland	1903	..	3,000
Windsor	1898	12	2,800
Woodstock	1897	10	3,300

THE STONE CRUSHER

Stone for roadmaking is now rarely broken by hand. With existing high wages and scarcity of labor, hand-broken stone is scarcely to be considered, in Canada, as a material for roadmaking. In occasional instances prisoners at the county gaol take exercise at a stone-heap, or old men who would otherwise have to be cared for by charity are allowed to earn a little money by breaking stone for a municipal corporation; but the quantity of stone prepared in this way is very limited. By means of the stone crusher, the difficulty of higher wages, and scarcity of labor is largely overcome, and broken stone, for roadmaking, is being placed within the reach of all. The work is done cheaply and quickly, and while more expensive than gravel, a much more durable road can be constructed. Even in the treatment of gravel, a crusher is often very valuable especially if it contains many large stones and boulders.

These machines are made after various patterns, the main division being into rotary and jaw crushers. Some of the smaller sizes are set on wheels, and may be moved readily from place to place. Others are for stationary work, in a quarry, or at a point to which stone, field boulders, etc., are brought to be broken. They are operated by steam power, a traction engine or stationary engine, or by an electric motor, as circumstances render most advantageous. Some municipalities owning a steam roller obtain power from it, but this is apt to injure the roller.

Where field boulders are plentiful, the property owners are very glad, as a rule, to have a means of disposing of them, especially when they can be hauled in winter time. If the stone is stored for future crushing it should be put in piles on both sides of where the crusher is to be set up. Much can be saved by setting up a crusher so that it can be fed directly from the wagons, instead of wheeling the stones to barrows. To permit of this, in Brantford, the crusher is permanently set in an excavation on a side-hill at the river, wagons driving over the crusher; while in Berlin a platform is erected to the level of the crusher. The broken stone should always be received into bins from the crusher, and from these a wagon containing a quarter of a cord can be loaded in from two to four minutes.

One of the most valuable features of a crusher is that by attaching it to a rotary screen the crushed stone may be separated into grades according to size, usually such as will pass through a three-inch ring, such as will through a one and one-half-inch ring, and fine chips and screenings. By placing the coarse stone in the bottom of the road, and the finest on top, a smoother and

Concrete bridge between Downie and S. Easthope. Span, 30 feet ; width, 14 feet ; cost, $635.

more double road is obtained. An average cost of a crusher is $800 or $900.

They are principally used in the eastern part of the Province, where good stone is plentiful and gravel is scarce. In some cases an engine is purchased, and in others the engine is rented from some one in the vicinity owning a threshing machine. A traction engine is an exceedingly valuable part of a roadmaking outfit, as it can be used for operating the crusher, if portable, for moving it from place to place, and for operating a grading machine. Crushers are owned by numerous towns and cities in all parts of the Province. Townships owning them are: West Hawkesbury, Hallowell, Collingwood, St. Vincent, Markham, Ameliasburg, Winchester, Thessalon (town and township), Smith, Cornwall, Nottawasaga, Drummond, North Grimsby and Derby. Crushers are owned by private parties, and used for municipal purposes in Ernesttown, Rear Yonge and Escott, Front Leeds and Lansdowne, Beckwith, Pittsburg, Elizabethtown, and Kitley. There are also well-known quarries at Amherstburg, Hagersville and other places on the Grand River, on the Niagara River, in the vicinity of Hamilton, at St. Mary's, Kingston, Brockville, Ottawa and other points. The counties of Victoria and Peel have each purchased a crusher, which is supplied to the minor municipalities as they require it, while Hastings, Wentworth, Simcoe, Wellington and Lanark use them for their county roads.

PRACTICAL ROADMAKING IN OUTLINE

The following rules are among the most important in making and maintaining township roads of the class most suited to this Province. They should be applied judiciously, not overlooking the fact that there may be an exception to every rule. The most efficient application of these rules can in many cases only result when the roadmaker has a wider understanding of the facts upon which they are based, and which are discussed in greater detail elsewhere in this report.

1. Every good road has two essential features:

(a) The earth subsoil is well drained, naturally or artificially, making a strong, unyielding foundation, acted upon to the least possible degree by frost.

(b) The wearing surface is a smooth, hard and compact crust, which sheds water readily, and distributes the concentrated wheel load over a greater area of subsoil.

2. The surface covering is generally a coating of gravel or broken stone, which should be put on the road in such a way that it will not, in wet weather, be churned up and mixed with the earth beneath. That is, it should form a distinct coating.

3. To accomplish this:

(a) The gravel or broken stone should contain very little sand or clay—it should be clean.

(b) The roads should be crowned or rounded in the centre so as to shed the water to the open drain.

(c) Ruts should not be allowed to form, as they prevent water from passing to the open drains.

(d) The open drains should have a sufficient fall and free outlet, so that the water will not stand in them, but will be carried away immediately.

(e) Tile underdrains should be laid wherever the open drains are not sufficient, and where the ground has a moist or wet appearance, with a tendency to absorb the gravel and rut readily. By this means the foundation is made dry.

4. Do not leave the gravel or stone just as it drops from the wagon, but level it so that travel will at once pass over and consolidate it before the fall rains commence.

5. Roll the gravel or stone with a road roller until it is smooth and hard. If a roller cannot be had keep the new road metal raked or scraped into the wheel and horse tracks until consolidated.

6. Grade and crown the earth road before putting on gravel or stone, also roll the earth road before putting on the metal if a road roller is available.

7. The grader should start work early in the spring, and be kept continuously in operation until the season's work is completed. Work for the grading machine should be staked out in advance, so that the several pieces can be taken up consecutively; otherwise much time is lost in moving the machine from one part of the township to another.

8. A sufficient crown for new gravel roads on level ground is one inch of rise to each foot of width from side to centre.

9. The road on hills should have a greater crown than on level ground, otherwise the water will follow the wheel tracks and create deep ruts, instead of passing to the side drains. One and one-quarter inches to the foot from the side to centre will be sufficient.

10. The work of cutting down hills should be undertaken systematically, a few being taken up each year and made good, the worst or most necessary

being first looked after. Gravel or stone can then be put on permanently. The steepness should not exceed one foot in twelve.

11. Repair old gravel roads which have a hard centre, but too little crown, and which have high, square shoulders, by cutting off the shoulders, turning the material outward across the ditch if necessary, and placing new gravel or stone in the centre of the road. Do not cover the old gravel foundation with the mixture of earth, sod and fine gravel, of which the shoulders are composed. The shoulders can most easily be cut off by means of a grading machine.

12. Roads of importance should be about twenty-four feet in width, between the inside edges of the open ditches, with the central eight feet gravelled or metalled with broken stone. Roads of least travel should not be less than eighteen feet in width.

13. Wherever water stands on the roadway or by the roadside, or wherever the ground remains soft, or is swampy in the spring and fall, better drainage is needed.

14. Look over the roads after heavy rains and during spring freshets. The work of a few minutes in freeing drains from obstructions, or diverting a current of water into a proper channel, may become the work of days if neglected.

15. Surface water should be disposed of in small quantities; great accumulations are hard to handle and are destructive. Obtain outlets into natural watercourses as often as possible.

16. Instead of having deep, open ditches to underdrain the road, and dry the foundation, use tile.

17. Give culverts a good fall and free outlet, so that water will not freeze in them.

18. In taking gravel from the pit, see that precautions are taken to draw only clean material. Do not let the face of the pit be scraped down, mixing clay, sand and turf with good gravel.

19. Gravel which retains a perpendicular face in the pit in spring, and shows no trace of slipping, is generally fit for use on the road without treatment. Dirty gravel should be screened.

20. Plan and lay out the work before getting the men on the ground.

21. When preparing plans keep the work of succeeding years in view.

22. Have on the work only such number of men and teams as can be properly directed.

23. In laying out the work, estimate on a full day's work from each man, and see that it is performed. Specify the number of loads of gravel to constitute a day's work. Every wagon box should hold a quarter of a cord.

24. Make early arrangements for having on the road, when required, and in good repair, all implements and tools that will be needed.

25. Do all work with a view to permanence and durability.

CONCRETE CULVERTS

Water should be carried from the road allowance as quickly as possible, for it is an excess of water that is the great destroyer of roads. To do this, it must be led away in small quantities, along natural watercourses, and must be conducted under the roadway at more or less frequent intervals, according to the topography of the district. Small wooden culverts are constantly decaying, requiring removal and repair, are a matter of constant expense, and an obstruction to travel and the free use of the road.

The construction and repair of culverts has become, in numerous townships, a serious drain upon the yearly appropriation available for road purposes. In some cases as much as half or two-thirds of the grant from the general funds is absorbed in this way, a matter of from $1,000 to $2,000 annually. The number of these culverts on country roads varies greatly. Ordinarily half a dozen are needed for each mile of road if proper drainage is provided.

Tile Culverts

A number of townships in the Province have done much towards greater permanency and efficiency, and a reduction of cost in this regard by using concrete tile, and vitrified sewer pipe in place of cedar, or other timber. These materials have been used in a few municipalities for from fifteen to eighteen years, and in some instances the annual outlay for culverts has been almost wiped out, owing to their permanency and durability.

The manufacture of concrete tile for culverts is a very simple matter, and can be undertaken by the municipalities themselves, although in numerous cases they are now manufactured as a private enterprise. Just such a number of pipe as are actually required for the season's work need to be manufactured; the implements required are inexpensive, and the pipe may be made by the municipality for actual cost, which, after a little experience, can be reduced to a very small amount.

The implements required are of the simplest kind. The most important are two steel spring-cylinders, one to set

inside the other, leaving a space between the two equal to the thickness of the finished concrete pipe. These can be procured from the manufacturers of roadmaking machinery. By "spring cylinder" it may be explained, is meant such a cylinder as would be formed by rolling a steel plate into a tube without sealing the joint. With the smaller of these cylinders the edges overlap or coil slightly, but are so manufactured that the edges may be forced back and set into a perfect cylinder. With the larger, the edges do not quite

Concrete Tile Culvert.

meet, but may be forced together and fastened. Accompanying these molds are bottom and top rings, which shape the bell and spigot ends of the pipe.

The two cylinders, with joints flush, are set on end, the one centrally inside the other, and on the bottom "ring," which in turn rests on a firm board bottom. The concrete, made of first-class cement, and clean, screened gravel, in the proportion of one of cement to three of gravel, is then tamped firmly into the space or mold between the two cylinders. The tamping-iron used to press the concrete into place is so shaped as to fit closely to the cylinder.

The concrete is allowed to stand in the mold for a short time, when the cylinders are removed; the outer and larger cylinder by removing the clamps, and allowing the edges to spring apart; the inner cylinder by removing the fastenings, so as to allow the edges to again overlap, returning to the shape of a coil. The outlet cylinder having thus been made larger, and the inner one smaller, they can be readily taken away, and the concrete pipe is then left until thoroughly hardened. For the larger sizes, the two halves of the outer cylinder are usually hinged, and can be more carefully removed than when allowed to "spring" from the concrete.

The concrete adheres closely to the metal, and to overcome this it is necessary to keep the molds well oiled. This should be done after each tile is made, and when the molds are by this means kept perfectly clean, a smooth and uniform pipe of good appearance will be obtained. A good mixture for oiling the molds is composed of two parts of machine oil to one part of coal oil.

To secure a durable pipe it is necessary to exercise much care in mixing the concrete. Portland cement should be used. If gravel is used, it should first of all be clean. Any earthy material, clay, or vegetable mold, will create a flaw in the pipe, which will lead to its early destruction, and durability is the quality most to be desired. The gravel should be of a size that will pass through a one-half inch screen, and should be of varying sized grain, in such proportions as to make a compact mixture. The gravel forms the greater part of the mass of concrete, and it is evident that the results will depend very largely on the quality of the gravel.

The materials should be mixed in the proportion of one part of Portland cement to two parts of gravel. They should first be turned over in a dry state until thoroughly intermixed and of a uniform color. Water should then be added. This, like the gravel, should be clean, and there should be just enough to moisten the mass of concrete, making it of the consistency of a stiff mortar. An excess of water tends to injure concrete in various ways, and is especially to be avoided in the manufacture of tile, as the tamping cannot be properly performed when too much water is used. When the water has been added, the mixture should be made uniformly moist, by turning it over three times with a shovel. The concrete is then ready to be placed in the molds, in which it should be firmly and vigorously tamped.

Such a quantity of concrete should be mixed as can be put in the molds before the process of setting has commenced, and it is therefore of importance to know how long the brand of cement used can be worked before setting begins. A moderately slow setting Portland cement is necessary for this work. Ordinarily it is best to mix enough to fill one mold at a time.

Remnants of concrete which have commenced to set should be thrown away, and under no circumstances should they be worked up again and used, as they are certain to cause a defective pipe. Defects which do not appear until after the tile have been placed in a culvert and covered with earth, cause not merely the loss of the pipe, but a considerable outlay for labor is wasted as well. The concrete should be handled quickly. Two men are needed, one to shovel it into the molds, and the other to tamp it. From twelve to fifteen feet of pipe, of ten to twelve inches diameter, is an average day's work for two men. The cost of manufacturing pipe of these diameters will vary with the price of labor and materials, from fifteen to twenty-five cents per lineal foot.

Until the concrete has hardened sufficiently the molds should not be disturbed. When the pipe has attained sufficient strength (which it should do in from five to seven hours, according to the temperature of the atmosphere, and the kind of cement used), it can be turned end for end, thereby taking it off the bottom rings, and the molds may be removed. To enable the pipe to set satisfactorily they should be dampened every day for several days, if the weather is dry, and then should be protected from the direct rays of the sun in hot weather. They should not be used for some time after being made, but should be allowed to season for from four to six weeks.

The molds for manufacturing these tile may be obtained in various sizes, the more common being for tile ranging from ten to thirty inches in diameter. The ten-inch tile is made about one and three-quarter inches thick; the twelve-inch tile, about two inches thick; the fifteen inch tile, two and one-eighth inches thick; the eighteen-inch tile, two and one-quarter inches thick; the twenty-four-inch tile, two and one-half inches thick; and the thirty-inch tile, three and one-half inches thick. Molds for making twelve-inch pipe cost about $12 per set; for fifteen inch, about $14 per set; for eighteen inch, about $17 per set; for twenty-four inch, about $21.50 per set; and for thirty inch, about $26. The molds are such as will manufacture pipe two and one-half feet long. One set of bottom rings—those for forming the bell of the pipe—go with each set of molds, but it is advisable to have about three sets of bottom rings for each pair of cylinders, to permit the maximum number of pipe to be made in a day.

If the best results are to be obtained from the use of concrete tile culverts, the tile must be put in place with reasonable care. It is, in the first place, necessary that they shall be laid with a good fall on a regular grade to a free outlet, in such a way that water will not stand in them. Lay the tile with the spigot end down grade, and make the joints tight with cement mortar. If the joints are open, water will work along the outside of the culvert, and finally make a considerable chan-

Concrete Tile Culvert.

nel, which will allow the culvert to get out of line and finally result in a "cave-in." To prevent the water finding its way along the outside of the pipe, it is advisable to protect the ends with concrete, stone or brick head-walls.

Excavate a concave bed for the pipe, with depressions for the bell of the pipe to rest in, thus securing an even bearing, without which a heavy load passing over before the culvert has properly settled into place may burst the tile. Tile cannot be used in very shallow culverts, but must have a sufficient depth of earth over them to protect them from the direct pressure of heavy loads. The depth of covering necessarily increases with the size of the pipe. At least a foot of earth over the top is advisable in every case; but for culverts of two feet in diameter or over, this should be increased to at least eighteen inches.

The earth should be well packed and rammed around the tile to secure a firm bearing, and light soils should not be used immediately over or around the culvert. A heavy clay, a firm gravel, or a compact sand will answer, but

vegetable mould, water sand and light loams are subject to washouts.

As to the outlet, the culvert should be set nearly flush with the surface of the ground. If set higher than the surface, the fall of water will wash out a depression, and in time will undermine the end of the culvert. A too rapid grade will have the same effect, and it is well to cobble-pave an outlet where this undermining action is likely to occur.

ARCH CULVERTS

Concrete or other durable culvert tile are to be recommended for small waterways, where there can be no doubt as to their sufficiency to accommodate the maximum flow of water. A difficulty with tile, however, has been that they are frequently used in places where a larger waterway should be provided; and while they may be large enough for the greatest flow of water for a period of years, yet there is apt to come a time of sudden flood or freshet when they are subjected to a rush of water for which they have not capacity, and a washout results.

For this reason, when putting in culverts which it is desired shall be permanent, care should be taken to provide a waterway of ample size for the unusual, not the usual, amount of flow. To this end, arch culverts of concrete or stone masonry should be employed, or concrete culverts with a flat top may be used for the smaller waterways. Concrete is made of gravel and Portland cement; or, of broken stone, sand and Portland cement. If properly made, concrete is not only cheaper, but is more durable than stone masonry.

The cost of a concrete culvert will range from about $4.50 to $6.50 per cubic yard of concrete in the structure. The variation is created by a number of details—the availability of gravel, the cost of Portland cement, the cost of labor and other items. The first to be constructed by a municipality always costs more than subsequent work.

A stone arch is so designed that the stone will remain in place without being held together by mortar. Concrete arches, on the other hand, are dependent upon the cohesive strength of the materials. Good workmanship and good materials are therefore of exceedingly great importance in building concrete arch culverts. It is also essential that the side walls of arch culverts shall rest on a firm stratum of hardpan, gravel, compact earth, or other unyielding base, so that there will be the least possible settlement. If settlement occurs to any extent it is rarely uniform, and the arch is thereby distorted and cracked. Usually it is necessary to excavate, for the side walls, a depth of about three feet below the bed of the stream. A certain depth is necessary in any location in order that the side walls may not only be safe

Stone Arch, Wentworth County.

from settlement, but also from the undermining tendency of the stream.

FLAT TOP CULVERT

A concrete culvert with a flat top can be adapted to any location where stone masonry walls with a flag-stone top could be used and is a parallel case, in which artificial stone or concrete is used in place of natural stone.

In this type of culvert the principal matter to guard against would be a break in the cover stone. There is no difficulty, for short spans up to at least six feet, in proportioning the thickness of this cover for any possible load to which the culvert would be subjected. A possible cause of failure would arise from the displacement of the side walls by frost, which might break the cover stone; or by uneven settlement from any cause.

Care should in every case be taken to see that the side walls are carried to a sufficient depth to a secure foundation; three feet is sufficient for most situations, especially where a layer of hard pan, firm gravel, or rock, is close to the surface. The greater the span, the more necessity there is for a deep or a solid foundation.

The strength for the cover stone, especially for culverts of greater span, say six or eight feet, would be much increased by having barbed or smooth fence wire stretched back and forth across the culvert, which should be fully imbedded in concrete, but as close as possible to the bottom of the cover-stone.

It is desirable that a layer of earth, six inches or more in depth, should be over the top of the culvert. If this is impossible, and the top of the culvert must be level with the road surface, the cover stone should have a finishing coat rich in cement, in the proportions of one part of cement to two of sand. Otherwise a culvert of this description may be made throughout of Portland cement and gravel, mixed in the proportions of one of cement to six parts to gravel. Wing and parapet walls may be built as as the situation of the culvert requires.

HIGHWAY BRIDGES

The use of concrete does not cease with tile and small span arch culverts, but may extend to arches of considerable span, while for abutments and piers it is the most satisfactory material available.

Concrete bridges have been commonly built with spans of thirty and forty feet. Last year an arch of thirty feet span and fourteen-foot roadway was erected on the town line between the Townships of Downie and South Easthope at a cost of $635. The thickness of the floor is only fourteen inches, and the abutments at each end are three and a half feet thick at the base and two and a half feet at the top. This bridge, of which a photo engraving appears elsewhere in this report, is almost wholly of concrete, but the flooring is reinforced to some extent with metal. The method of construction was to first construct a wooden substructure between the abutments. On this was placed four inches of concrete, in which were imbedded steel rods of one and three-quarters inches diameter, running lengthways, and ten inches apart. On this a coating of concrete was laid, then a layer of woven wire was stretched from end to end of the bridge. On this a coating of concrete was laid, then another layer of wire, and so on, making a total thickness of fourteen inches at the centre of the bridge. A concrete parapet wall takes the place of a railing. This is also strengthened with wire, and heavy bolts are run downward and fastened in the floor so that the wall adds to the strength of the bridge.

Highway bridges of longer span are now being commonly constructed with steel superstructures, and concrete or stone masonry abutments. When timber of the best quality was more plentiful and cheaper than now, wooden bridges were no doubt most economical, but with the growing scarcity of lumber, increased price, and poorer quality obtainable, the more durable if more expensive materials, will after a term of years, be found the cheapest.

Wooden bridges supported on piles do not last for more than eight or ten years, during which period a considerable amount has to be spent for repairs. Concrete piers and abutments, if well built, should last a century or more, while the steel superstructure, with proper attention, should last at least half as long. So that, although the initial cost of a wooden bridge may be only one half or one third that of a steel and concrete structure, the latter will in the end be the cheapest. In addition, it will be safer, less liable to collapse, and will be more convenient for traffic.

Well-made concrete is cheaper and fully as durable as stone masonry. Just as the cost of stone masonry varies in different localities, in accordance with the cost of stone, labor, etc., so the cost of concrete will vary according to the relative cost of gravel, broken stone, Portland cement, and labor. For piers and abutments, the cost of concrete usually ranges from $4 to $6 per

cubic yard, as compared with stone masonry at from $10 to $14 per cubic yard. Under almost any circumstances concrete is cheaper than stone masonry.

Bridge Floors

Brige floors of plank usually wear out in from two to four years, and are a constant matter of expense. Where bridges are built with masonry abutments and steel superstructure, the floors should be made of concrete. An illustration is given in this report of a bridge in Elgin, with a floor of this description—the type of construction now being generally adopted throughout that county, and elsewhere in the Province.

Concrete floors are exceedingly durable, and, although costing much more than plank when first laid, their greater durability will enable them to outwear half a dozen plank floors. Their cost in Elgin when first adopted was 47 cents a square foot, but this has been reduced, and floors are now being laid for 28 cents a square foot.

Concrete adds a considerable load to the dead weight of the bridge, but this is more than compensated for by the extent to which it distributes the live load. With a plank floor, the weight of every vehicle passing over it is transmitted to the individual members of the bridge, causing a constant jarring and distortion that is very destructive to steel. With concrete, on the other hand, the weight of a passing vehicle is spread over a much greater area of the bridge structure, the floor being a monolith and distributing the live load over a much greater bearing than can each plank. In this way the injury to bridges is much less with a concrete than with a plank floor.

So much is this the case that, with a concrete floor, it is not necessary to restrict the speed of vehicles travelling over it. With a plank floor it is always expected that horses will not be driven over the bridge faster than a walk. But with concrete floors, travel is not interfered with, and horses may be driven over at the ordinary pace.

ACT FOR THE IMPROVEMENT OF PUBLIC HIGHWAYS.

The Act for the Improvement of Public Highways, I Edward VII., Chap. 32, which received the assent of the Legislature April 15th, 1901, with certain subsequent amendments is as follows :

His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows :

$1,000,000 appropriated for road improvements.

The sum of $1,000,000 is hereby set apart to be paid out of the Consolidated Revenue Fund of the Province to aid in the improvement of public highways, subject to the terms and conditions hereinafter set forth.

Townships to report acceptance or rejection of by-law.

The highways to be improved in any county may, before the 1st day of January, 1905, be designated by by-law of the county council, and a copy of such by-law shall be transmitted forthwith to the clerks of the townships of such county.

By-law designating highways to be improved.

The municipal councils of the townships shall within three months of the receipt of such notice from the clerk of the county council take into consideration the highways so designated in said by-law, and shall report their acceptance or rejection of the same to the clerk of the county council.

Arbitration where one-third of the townships are adverse.

On the receipt of such reports by the clerk of the county council from the clerks of the township councils in the county, if it should appear that one-third of the township councils are adverse to the highways designated by the county council as county highways, then the roads within such townships as reported adversely, which are to form part of the county highway system of such township, shall be determined by arbitration as provided in the Municipal Act.

Rev. Stat. c. 223.

Where it appears that more than one-third of the township councils disapprove of the system of highways designated in the by-law submitted by the county council, the county council shall then submit to the ratepayers of the county qualified to vote on money by-laws the question, "Are you in favor of a county road system?" If a majority of the votes cast is in favor of a county road system, the roads to be designated and assumed within any township, the council of which disapproved of the roads designated by the county council, shall be determined by arbitration as provided in the Municipal Act.

Submitting question to ratepayers.

Submitting by-law for assuming roads.

Before the final passing of a by-law by a county council designating and assuming roads as provided in sub-sections (1), (2) and (3) of the preceding section, the county council may submit the same for the approval of a majority of the ratepayers of the county qualified to vote on money by-laws.

When local municipalities may adopt road scheme.

In case the by-law or question so submitted fails to receive the assent of a majority of the ratepayers of the whole county so voting or the county council neglects to take action as provided in section 2, then the council of any local municipality in the county may, on or before the 1st of January, 1906, pass a by-law designating the roads within such local municipality to be improved, but no by-law for the improvement of roads in any municipality shall take effect until such by-law is approved by a majority of the ratepayers of such municipality in the manner provided by the Municipal Act with respect to by-laws for the creation of debts.

Application of grant to purchase of toll roads.

Any municipality may apply the whole or part of the moneys to which it may be entitled under the this Act towards paying any expenses that may be incurred for the purchase of toll roads within such municipality, or for freeing the same from tolls. Such toll roads as are purchased shall be included in the roads to be designated and assumed or improved in accordance with the provision of this Act.

Regulation and inspection.

Any highway, in order to come under the provisions of this Act as to aid, shall be constructed or repaired according to the regulations of the Public Works Department with respect to highways.

Grant of one-third of cost of improvement.

On the completion of any work of road improvement under this Act the council of the municipality under which such work was carried on shall submit to the Public Works Department a statement setting forth the cost of such work, such statement to be certified by a competent engineer, who shall further certify that the regulations of the Public Works Department have been complied with, and on the receipt of said statement by the Provincial Treasurer, certified and approved by the proper officer of the Public Works Department, the municipality shall be entitled to receive out of the moneys hereby set apart for public highways an amount equal to one-third of the cost of the work, but not to exceed the proportion of the appropriation to which such municipality is entitled.

Issuing debentures for expenditure on highways.

The municipal council of any township or county taking advantage of this Act may raise by debentures, payable in thirty years, as provided by the Municipal Act, such sums of money as may be necessary to meet any expenditure on highways under this Act, but in no case shall the debentures issued under this Act exceed two per cent. of the equalized assessment of the county.

Statute labor on improved roads to be commuted.

The statute labor, for which all lands fronting on roads constructed or repaired under this Act may from year to year be liable, may be commuted and may be applied towards the improvement of the other highways of the municipality as may be determined by the township councils concerned.

Amount of colonization road grant to be deducted.

In the case of any township receiving grants from the consolidated revenues of the Province for colonization roads, the amount of such colonization grants shall be deducted from any sum of money to which such township is entitled under this Act.

Grants made before passing of Act to be deducted.

Where any township has been in receipt of grants for colonization roads out of the consolidated revenue fund, for the five years previous to the date of this Act, the assessed area of such township shall be deducted from the area of the county in which such township is situated, in determining the sum to which the county is entitled under this Act.

By-law for county road system to be approved by Lieutenant Governor in Council.

No county shall be entitled to receive any portion of the sum set apart by the Act for the Improvement of Public Highways passed in the first year of His Majesty's reign as aforesaid unless and until the by-law designating public highways within the county as a county system of highways has been approved of by the Lieutenant-Governor in Council.

Annual county grant for roads to townships not immediately interested in county system.

Where it appears that the highways designated as county roads established under this Act do not pass through one or more of the townships in the county or where it appears that such highways pass through but a small portion of any township, the county council may by by-law make a grant of a specific amount or an annual sum or both for the permanent improvement of highways in such townships or townships as an equivalent for the amount which such township or townships may contribute for the establishment of a county system of highways.

Aid to county where road system established prior to 1 Edw. VII, c. 32.

Where at the time of the passing of the said Act the municipal council of any county had by by-law established a system of county roads equal in every respect to the requirements of the Public Works Department, such system of county roads shall be deemed to be within the meaning and intent of the said Act without any submission thereof to the ratepayers or to the township councils, as provided in sections 3 and 4 of the said Act, but nothing in this section contained shall be deemed as preventing the county council from granting an equivalent to any township not benefited by the said county road system, as provided by section 5 of this Act.

County grant to roads in villages and towns.

The county council of any county may make a grant by by-law to any incorporated village or town in the county not separated from the county for the purpose of improving certain highways to be designated in such by-law in such village or town, but such highways shall not form a part of the county system of highways.

Intersection of other highways by county roads.

Wherever a county road intersects a highway which is not a county road the continuation of the county road to its full width across the road so intersected, including the bridges and culverts thereon or touching thereon, shall be a part of the county road system.

County Council not liable for sidewalks on county roads.

A county council shall not be liable for the building, maintenance or repair of sidewalks on any county road or portion thereof.

Counties to have powers as to snow fences. Rev. Stat. c. 250.

The county council shall in respect to county roads have all the powers given to townships, cities, towns, and incorporated villages under the Act respecting Snow Fences.

ROAD EXPENDITURE IN TOWNSHIPS.

The following schedule shows the cash expenditure by township councils for the thirteen years, 1889-1901 ; the statute labor for ten years ; and the estimated road mileage in each township. This does not include the expenditure by county councils, nor by cities, towns and villages. Township ratepayers will be able to make some interesting deductions as to what bad roads are costing. These statistics are compiled from reports of township officia's to the Bureau of Industries.

ESSEX.

Name of township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated Road Mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Anderdon	1,374	1,236	1,848	3,527	2,048	1,934	631	2,187	2,285	2,549	2,228	1,736	1,019	24,602	14,510	69
Colchester, North	2,284	2,674	2,438	1,551	1,695	1,345	354	1,913	1,148	2,888	2,288	2,064	1,633	24,275	21,590	88
Colchester, South	3,645	4,457	1,910	1,532	2,030	2,628	2,239	1,269	1,667	2,256	1,498	2,572	1,678	29,381	32,420	70
Gosfield, North	575	981	817	639	625	1,251	664	683	448	1,210	987	716	1,707	11,303	17,280	95
Gosfield, South	1,419	2,011	1,862	2,122	1,804	1,492	1,028	1,542	2,388	1,271	2,184	1,664	2,466	23,253	12,890	70
Maidstone	1,123	1,277	1,885	1,676	1,790	3,599	2,223	2,190	2,559	2,065	2,104	2,408	2,360	27,259	25,390	150
Malden	2,479	2,803	2,394	2,839	3,434	2,322	1,688	1,481	1,993	2,564	2,122	2,134	2,692	30,945	.....	65
Mersea	2,659	3,226	1,955	1,786	3,317	2,059	1,898	2,786	2,756	2,555	4,598	3,588	3,098	36,281	33,700	120
Pelee Island	230	3	319	239	150	433	306	384	246	461	914	931	1,048	5 664	10,870	50
Rochester	785	3,347	1,095	1,963	2,485	1,280	1,023	936	1,601	1,751	1,627	1,164	1,172	20,229	17,440	86
Sandwich, East	1,738	2,921	1,884	2,215	1,460	943	479	1,524	698	1,846	2,267	1,354	1,427	20,756	18,000	54
Sandwich, South					813	1,546	931	1,527	1,631	1,070	808	1,485	1,019	10,830	21,920	69
Sandwich, West	3,901	1,279	2,812	1,872	2,184	1,761	1,873	1,799	1,973	2,332	2,452	3,184	2,695	30,117	16,440	100
Tilbury, North	1,167	1,755	1,482	761	2,195	1,789	499	2,334	323	3,675	1,899	888	715	15,078	13,800	60
Tilbury, West				211	1,641	2,106	1,583	1,434	1,879	1,073	1,437	1,203	1,508	18,479	3,740	52
Totals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	328,452	259,990	1,198

KENT.

Camden	1,174	1,585	1,900	1,986	1,751	1,892	1,002	1,312	1,147	7,372	2,179	3,624	1,289	28,213	26,630	120
Chatham	1,639	2,734	3,934	2,436	3,207	2,026	1,415	2,518	4,092	3,924	4,017	3,433	3,036	38,411	39,000	240
Dover	996	1,713	1,353	1,073	900	726	640	735	949	1,568	905	658	571	12,787	26,180	204
Harwich	3,148	6,311	3,422	3,037	5,816	3,612	3,563	3,425	5,223	4,290	4,471	4,417	3,766	54,501	51,620	300
Howard	3,858	2,772	2,966	3,461	3,195	3,168	1,908	2,173	3,277	3,039	2,704	3,126	4,969	40,616	23,770	138
Orford	2,748	2,488	1,723	1,944	1,758	2,322	2,676	1,839	2,178	2,239	2,180	2,584	2,487	29,166	27,840	160
Raleigh	1,894	3,991	2,281	2,044	2,281	1,997	1,303	1,438	1,924	2,042	2,338	2,185	1,883	27,601	41,710	210
Romney	637	1,461	608	115	973	564	1,261	690	1,021	2,120	1,640	1,222	1,709	14,021	16,600	57
Tilbury, East	2,495	1,974	2,744	2,706	1,764	2,785	1,716	2,843	3,487	4,370	4,260	2,395	2,472	36,011	19,390	180
Zone	500	471	878	1,495	558	603	707	765	664	763	2,305	799	718	11,226	11,640	72
Totals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	292,553	284,380	1,681

ELGIN.

Aldborough	5,369	3,729	3,248	4,717	4,065	4,760	4,057	3,745	4,156	4,211	5,568	5,256	4,022	56,903	45,110	225
Bayham	3,579	3,234	5,201	3,073	3,042	6,719	2,792	3,953	2,897	4,152	3,551	4,054	3,885	50,132	35,270	165
Dorchester, South	2,570	1,738	2,845	3,410	3,117	1,151	1,891	1,281	2,365	2,038	2,307	1,860	2,668	30,141	18,870	90
Dunwich	5,306	5,313	3,279	5,825	3,722	5,234	4,378	5,700	6,956	5,123	4,766	6,024	5,480	67,106	10,140	204
Malahide	2,879	3,125	2,52-	4,019	6,46-	4,796	3,123	4,266	4,052	4,206	7,749	7,207	6,088	60,490	48,250	158
Southwold	2,78-	4,376	5,059	6,110	5,83-	5,495	3,715	5,931	5,928	4,975	5,480	6,288	6,866	68,845	44,920	216
Yarmouth	5,740	6,59-	6,11-	7,597	6,69-	8,92-	6,200	7,971	7,028	5,889	9,531	12,369	7,548	98,195	53,240	180
Totals														431,812	255,800	1,238

NORFOLK.

Charlotteville	911	692	629	1,115	961	840	698	958	1,235	1,201	1,690	2,457	660	14,047	30,680	174
Houghton	1,027	957	1,119	862	1,079	724	598	892	1,219	846	1,035	824	1,378	12,560	16,230	99
Middleton	2,583	2,036	2,337	2,863	2,602	1,740	1,397	2,342	2,394	1,961	2,826	1,849	2,127	29,057	31,510	111
Townsend	1,344	1,165	2,256	2,134	1,101	1,31-	1,016	2,460	1,949	3,886	2,342	1,586	1,166	23,711	45,420	230
Walsingham, North	1,01-	1,478	1,382	1,932	1,349	2,131	1,980	1,778	1,714	1,727	1,711	2,429	1,499	22,120	22,650	95
Walsingham, South	47-	968	962	1,457	1,000	1,088	1,272	1,301	1,232	2,211	1,212	1,175	1,114	15,467	24,130	78
Windham	2,297	1,495	1,041	3,363	1,787	1,399	816	2,058	1,333	836	1,225	1,174	2,353	21,174	29,740	300
Woodhouse	1,248	1,136	2,03-	1,332	687	2,75-	1,349	1,586	1,045	1,612	2,172	1,184	1,553	19,696	26,770	150
Totals														157,832	227,130	1,237

HALDIMAND.

Canboro'	270	1,077	334	584	1,032	219	701	387	150	446	324	355	260	6,159	13,030	63
Cayuga, North	1,140	465	951	652	684	888	637	546	414	1,011	280	637	281	8,586	19,640	96
Cayuga, South	59	32	92	33	82	101	298	87	145	68	106	37	113	1,253	6,950	39
Dunn	283	166	174	451	194	264	263	221	132	149	156	229	166	2,848	9,010	40
Moulton	615	701	508	537	392	771	597	501	496	458	538	368	444	6,926	19,280	100
Oneida	1,264	1,036	884	807	626	706	1,302	2,858	2,047	2,729	881	2,458	601	18,193	18,290	96
Rainham	924	134	204	988	578	274	554	215	416	218	716	1,951	615	7,787	17,110	70
Seneca	633	1,369	718	584	988	924	1,052	966	1,142	657	1,342	1,142	1,206	12,723	20,120	160
Sherbrooke	29	68	88	20	27	66	18	39	209	23	93	114	70	864	4,020	20
Walpole	2,701	2,058	1,992	2,540	1,438	2,804	1,678	1,586	2,299	3,501	4,395	3,356	2,400	32,748	69,230	198
Totals														98,087	196,680	882

WELLAND.

Bertie	1,358	1,289	1,190	969	1,677	1,990	1,312	1,457	1,079	1,199	2,334	2,479	3,542	21,825	36,220	189
Crowland	279	322	286	240	407	685	726	321	382	376	569	652	613	5,858	17,490	57
Humberstone	455	614	1,234	352	545	736	540	702	652	962	1,216	1,102	1,410	10,520	39,080	99
Pelham	591	764	518	737	847	922	755	880	1,165	1,078	1,060	2,725	2,283	14,325	37,380	151
Stamford	655	879	535	646	758	990	1,127	1,679	1,162	639	1,879	1,090	2,043	14,082	30,250	100
Thorold	324	390	324	315	878	686	762	705	751	353	670	814	1,056	8,028	25,410	66
Wainfleet	972	1,866	1,288	1,251	1,274	1,397	794	1,120	820	652	989	1,063	991	14,480	30,210	153
Willoughby	227	242	377	243	979	603	175	466	427	509	659	441	492	5,840	11,120	100
Totals														94,958	221,160	897

ROAD EXPENDITURES IN TOWNSHIPS.—*Continued.*

LAMBTON.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated Road Mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Bosanquet	3,677	3,013	3,075	4,007	4,527	2,686	2,991	3,044	2,926	3,099	3,654	2,931	2,696	41,526	32,740	210
Brooke	2,456	4,650	4,155	5,485	3,532	4,131	3,360	4,742	5,311	4,750	4,602	4,908	5,926	58,008	30,000	170
Dawn	2,404	2,042	2,547	2,176	1,790	2,311	2,053	1,861	2,669	1,721	3,018	2,511	4,489	31,592	24,000	205
Enniskillen	6,703	5,493	7,401	6,244	9,354	7,779	5,223	3,723	4,484	2,831	5,007	5,589	6,349	76,180	59,320	246
Euphemia	1,066	1,466	1,832	3,721	5,595	5,014	1,179	1,598	1,559	1,620	1,775	1,655	1,661	29,741	21,600	125
Moore	5,847	5,494	4,616	5,245	5,311	6,440	3,520	3,799	3,436	4,844	4,733	3,397	5,048	61,730	54,310	200
Plympton	3,961	4,100	4,415	5,330	5,698	4,101	4,884	3,670	4,457	3,845	3,691	3,816	3,625	55,793	35,210	208
Sarnia	3,559	1,811	2,450	1,930	2,272	3,304	1,370	3,965	2,097	1,534	2,712	1,593	1,977	30,574	22,530	108
Sombra	3,846	1,784	2,283	2,462	2,162	2,826	1,741	2,223	3,648	2,364	2,913	3,014	2,360	33,626	5,230	224
Warwick	4,080	4,175	5,034	4,336	10,827	5,206	2,890	3,647	3,250	3,246	4,346	3,442	3,526	58,205	34,850	210
Totals														476,975	319,790	1,906

HURON.

Ashfield	2,527	2,149	3,661	2,888	4,038	4,338	2,185	2,216	2,806	2,742	3,334	3,969	3,256	40,109	33,880	189
Colborne	2,120	1,518	1,844	1,453	1,529	1,687	1,379	1,468	1,576	1,844	1,783	2,035	1,468	21,704	19,120	125
Goderich	2,312	2,154	2,772	2,570	3,131	3,198	1,860	1,919	2,491	3,054	2,893	2,418	2,019	32,791	22,270	156
Grey	2,579	2,301	2,433	3,188	3,153	2,026	1,346	2,337	1,797	2,661	2,097	2,531	2,367	30,816	41,540	200
Hay	2,209	4,586	3,645	3,560	2,836	3,325	2,117	2,051	3,288	2,934	2,650	3,049	2,335	38,585	37,810	110
Howick	1,812	1,852	1,831	1,644	2,571	1,488	1,365	1,899	1,581	2,134	2,183	2,566	3,104	26,030	40,230	201
Hullet	2,469	2,797	1,870	2,439	3,036	2,643	2,158	3,560	3,396	3,541	3,516	3,307	2,487	37,218	28,350	135
McKillop	2,001	1,747	2,106	2,315	2,912	2,298	3,177	2,062	2,356	2,456	4,489	4,286	2,353	34,558	39,300	137
Morris	1,280	1,373	2,416	1,252	3,356	2,470	2,845	3,661	2,444	1,518	1,709	1,496	1,503	27,323	31,190	162
Stanley	1,439	1,865	1,799	1,783	1,955	2,199	1,536	1,554	2,611	2,239	2,252	2,518	2,096	25,856	23,900	112
Stephen	3,301	4,175	3,614	3,794	4,680	3,954	2,513	3,294	4,010	2,898	3,194	2,955	2,951	45,333	30,280	150
Tuckersmith	1,564	1,577	1,766	1,735	2,103	2,467	2,133	1,602	2,015	1,887	1,999	4,123	3,922	28,893	28,510	127
Turnberry	1,289	1,219	1,329	1,181	777	935	1,123	656	438	589	1,113	1,051	1,244	12,944	24,330	87
Usborne	2,229	2,057	2,061	2,107	2,510	1,883	1,717	1,353	2,211	2,576	3,475	2,809	2,740	29,728	23,700	126
Wawanosh, East	1,238	1,168	1,079	1,320	1,626	1,561	1,882	911	1,538	1,061	947	1,254	1,271	16,856	17,350	100
Wawanosh, West	1,834	1,372	1,646	1,806	1,675	1,448	1,206	1,743	1,226	1,469	1,604	1,430	1,579	20,038	18,570	100
Totals														468,782	460,330	2,217

BRUCE.

Albemarle	812	797	625	547	695	774	760	569	687	497	732	792	1,075	9,362	10,410	125
Amabel	1,872	1,556	725	2,228	1,249	1,561	1,064	1,589	1,000	1,148	2,084	1,646	1,329	19,051	12,500	142
Arran	2,361	1,261	2,314	1,950	2,915	1,585	1,974	397	1,221	1,795	1,693	1,248	1,186	21,903	26,380	140
Brant	6,055	1,672	2,709	3,931	2,465	5,326	1,326	3,238	1,830	2,620	2,514	8,344	5,555	47,585	34,660	207
Bruce	1,968	2,082	2,773	2,575	2,861	2,884	2,365	1,956	2,135	2,179	4,049	3,886	4,304	36,017	32,320	169
Carrick	2,408	6,299	1,527	1,298	2,200	1,051	1,356	1,021	1,664	1,170	846	1,359	1,656	23,855	43,910	325
Culross	322	762	2,004	992	1,432	1,688	1,566	1,352	1,431	1,542	2,669	1,329	1,136	18,225	29,850	160
Eastnor	961	692	781	489	967	827	725	729	840	303	590	998	1,212	10,114	10,140	86

Elderslie	2,020	2,014	2,595	2,058	2,420	2,929	1,683	2,489	1,040	1,338	2,008	2,443	2,431	27,477	58,210	140
Greenock	1,835	1,659	2,902	2,210	2,633	2,026	1,378	1,647	1,485	2,484	2,103	2,854	3,792	29,008	32,720	120
Huron	3,912	2,995	5,513	3,204	4,347	4,636	3,370	3,590	3,098	2,583	3,294	5,499	5,345	51,386	36,040	155
Kincardine	2,818	2,972	2,840	3,324	3,506	2,565	2,066	1,591	1,838	1,360	1,927	2,942	2,893	32,642	41,090	170
Kinloss	1,024	1,495	1,659	1,514	2,076	1,178	1,068	1,139	1,159	1,376	1,112	1,768	1,393	17,961	26,310	141
Lindsay and St. Edmonds	315	2,450	399	344	539	427	249	687	1,012	363	930	960	607	9,282	4,790	76
Saugeen	1,022	819	1,955	1,828	2,646	1,161	943	663	1,241	806	862	1,576	779	16,301	18,580	105
Totals														370,169	412,860	2,261

GREY.

Artemesia	539	1,995	3,067	2,267	2,627	2,387	2,544	2,162	2,471	2,483	2,365	3,083	3,010	31,000	30,000	201
Bentinck	1,310	1,693	2,673	2,016	1,891	2,806	1,781	1,376	1,657	2,325	2,776	2,957	2,687	27,948	40,000	225
Collingwood	2,978	3,055	4,127	2,640	4,157	4,155	2,529	2,250	3,583	3,576	3,284	3,245	2,723	42,302	30,000	130
Derby	1,567	1,803	1,850	1,395	2,427	1,968	1,890	1,663	1,655	1,742	1,951	2,342	1,510	23,763	21,880	82
Egremont	453	411	449	587	593	1,567	1,459	450	1,261	825	1,922	476	1,998	12,451	39,930	150
Euphrasia	718	1,054	1,385	1,916	1,513	2,597	1,651	1,156	1,038	1,547	1,277	2,165	2,344	20,361	34,240	216
Glenelg	1,033	2,017	1,089	1,544	1,662	1,644	1,436	449	1,104	1,242	1,843	2,439	2,028	19,530	32,700	150
Holland	1,213	1,172	1,212	1,172	1,244	1,248	741	133	892	828	871	859	962	12,547	34,500	204
Keppel	1,718	1,650	1,624	1,468	2,192	3,415	1,697	1,077	951	1,798	1,779	2,873	3,029	25,271	37,600	187
Normanby	3,027	2,373	3,580	4,314	3,448	2,608	1,997	3,504	2,269	3,745	2,823	2,229	3,467	39,384	34,160	240
Osprey	798	758	864	957	1,195	1,457	909	1,122	876	950	1,273	1,337	1,289	13,785	33,850	110
Proton	1,684	1,856	2,181	1,374	1,951	4,358	1,615	1,457	1,272	1,484	1,561	1,358	1,619	23,770	39,910	240
St. Vincent	2,302	1,523	1,817	2,246	1,805	1,715	1,497	1,667	2,028	1,527	1,884	2,542	3,169	25,722	29,970	189
Sarawak	707	632	480	532	1,396	937	976	1,004	1,327	1,010	1,045	867	831	11,744	18,940	51
Sullivan	1,599	1,071	1,545	1,457	1,970	1,485	1,390	1,296	1,096	1,930	1,716	1,325	1,972	19,852	35,220	150
Sydenham	1,950	1,823	2,398	2,267	2,962	2,935	2,818	2,672	2,386	2,167	3,287	4,014	5,189	36,868	38,440	160
Total														386,298	526,340	2,685

SIMCOE.

Adjala	364	1,487	483	671	1,043	865	560	1,236	1,139	818	2,121	1,748	1,929	13,464	28,440	138
Essa	2,232	3,002	1,678	1,494	2,121	2,882	2,886	2,755	2,107	1,931	2,166	1,861	1,656	28,771	30,000	207
Flos	1,586	1,896	1,580	757	1,323	2,332	1,312	1,777	2,048	3,146	1,747	2,001	1,663	23,168	34,670	200
Gwillimbury, West	932	883	596	775	808	877	733	1,158	1,113	856	1,026	761	1,142	11,610	25,750	110
Innisfil	1,615	1,691	862	1,144	1,532	1,389	1,165	1,730	1,517	2,577	3,006	2,559	2,701	23,488	38,350	176
Matchedash	348	475	292	161	420	259	201	142	174	295	264	233	214	3,778	3,270	51
Medonte	1,944	1,638	1,532	1,729	1,551	2,245	2,345	1,719	2,189	2,755	1,792	2,270	2,261	25,970	29,160	185
Nottawasaga	2,184	3,212	2,809	3,363	3,698	3,684	3 270	3,037	3,127	3,043	5,201	4,818	5,307	46,754	89,800	225
Orillia	1,929	2,890	662	2,256	2,075	2,638	1,997	1,556	1,397	1,377	2,345	3,784	3,037	27,943	25,780	207
Oro	646	1,532	1,088	1,324	1,874	1,534	1,461	2,141	1,048	1,323	1,527	1,218	1,624	18,340	37,770	200
Sunnidale	857	1,669	1,810	1,972	1,614	1,298	1,374	1,792	1,058	845	1,744	2,029	2,179	20,241	25,040	165
Tay	945	1,811	1,281	2,098	1,851	1,473	1,560	1,515	1,430	1,673	1,503	1,623	1,321	20,085	30,050	110
Tecumseh	1,524	1,599	2,075	1,246	2,645	2,162	2,257	3,305	2,663	1,919	3,422	5,770	5,977	36,564	34,130	210
Tiny	1,035	2,377	1,619	1,297	1,021	1,140	812	1,504	2,466	1,387	1,498	1,878	1,720	19,754	33,000	234
Tossorontio	504	625	858	408	531	412	533	533	887	1,044	610	725	1,151	8,841	12 000	142
Vespra	853	2,215	1,753	1,448	1,859	1,304	1,598	1,441	1,278	1,957	1,671	1,382	1,152	19,911	21,100	186
Total														348,866	491,200	2,756

ROAD EXPENDITURE IN TOWNSHIPS.—*Continued.*

MIDDLESEX.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated Road Mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Adelaide	1,727	1,834	2,007	2,925	2,950	2,421	1,990	2,095	2,174	2,625	2,746	2,668	2,378	30,540	34,600	150
Biddulph	2,752	2,630	2,598	3,011	3,482	3,270	3,609	3,389	2,805	2,686	4,351	4,293	3,376	42,252	28,560	110
Caradoc	3,671	3,587	2,978	6,048	4,912	2,900	3,147	2,759	4,021	3,715	3,983	4,890	3,149	49,760	35,410	175
Delaware	1,691	1,822	1,843	3,396	1,782	1,287	1,338	1,338	2,573	1,718	2,457	1,526	1,080	23,554	18,060	69
Dorchester, North	3,883	4,124	4,910	8,160	4,903	7,749	1,702	3,167	4,474	3,369	4,943	6,604	5,665	63,653	37,240	150
Ekfrid	4,437	2,421	3,521	4,031	5,090	3,241	4,217	6,244	4,431	3,956	4,249	3,398	3,644	52,880	22,720	170
Lobo	4,679	3,144	4,778	4,585	4,917	3,226	3,433	4,501	3,052	4,199	5,531	3,815	4,832	54,692	28,280	223
London	11,688	7,774	11,560	11,404	11,435	13,077	9,468	15,209	13,109	13,299	14,730	21,823	11,155	165,731	63,510	297
McGillivray	3,949	4,338	3,975	5,243	5,223	6,395	3,518	4,125	3,350	5,809	5,069	6,232	4,298	62,524	50,000	144
Metcalfe	2,716	1,907	3,190	1,938	2,933	1,965	2,377	2,612	2,460	4,754	2,189	1,790	2,751	33,582	25,000	108
Mosa	2,708	2,325	2,605	2,651	2,097	2,427	1,375	1,603	1,891	1,705	2,026	2,087	2,425	27,925	27,190	165
Nissouri, West	2,803	3,086	6,056	4,054	4,146	3,942	3,792	4,392	3,834	3,349	5,533	2,452	5,135	52,574	29,200	114
Westminster	7,925	6,071	6,971	6,022	5,627	6,387	5,668	5,515	6,084	6,813	6,796	6,324	8,274	84,477	37,900	140
Williams, East	1,784	1,708	3,880	2,233	2,974	4,261	2,068	2,038	3,057	2,427	2,713	2,000	1,931	33,074	26,860	144
Williams, West	1,601	1,432	3,567	1,196	1,725	2,389	1,464	2,028	1,467	2,822	3,175	2,647	2,451	27,964	20,760	105
Totals														805,182	485,290	2,234

OXFORD.

Blandford	1,475	910	1,392	961	1,096	1,707	1,063	1,247	895	2,567	2,745	1,627	2,401	20,086	23,130	87
Blenheim	3,604	2,102	4,301	3,913	4,183	5,469	4,023	4,181	5,507	2,984	4,747	4,774	6,152	55,940	55,940	175
Dereham	1,349	1,566	1,998	2,553	3,506	3,882	2,890	2,974	3,349	4,629	5,971	4,726	5,393	44,786	52,450	156
Nissouri, East	1,620	2,034	2,032	1,822	2,334	1,810	2,803	2,247	2,740	2,709	3,735	3,950	3,904	33,740	33,180	135
Norwich, North	1,55	1,374	1,593	1,989	1,662	1,919	2,080	2,983	3,120	3,526	3,591	3,333	4,851	33,571	30,480	99
Norwich, South	1,049	2,837	2,199	2,189	2,058	1,792	2,392	1,884	2,446	1,760	2,481	3,749	3,284	30,120	30,100	100
Oxford, East	78	827	1,433	1,595	1,312	1,608	1,371	1,508	1,503	1,854	3,237	2,321	2,075	21,430	25,430	97
Oxford, North	93	1,285	1,083	1,099	1,030	2,856	1,159	1,286	1,921	1,467	1,704	1,418	1,466	18,704	16,120	63
Oxford, West	721	745	1,326	760	1,253	1,071	1,150	1,354	1,263	1,443	2,658	1,275	1,255	16,275	21,090	75
Zorra, East	4,786	3,844	5,621	4,467	4,391	7,982	4,162	4,408	5,721	5,828	8,209	9,413	7,370	76,202	46,650	155
Zorra, West	3,344	3,862	2,862	3,716	4,566	2,742	3,044	3,461	3,918	4,637	6,401	2,601	5,088	50,242	38,200	165
Totals														401,096	372,770	1,307

BRANT.

Brantford	4,151	4,233	2,704	2,252	2,920	5,760	1,681	2,041	2,319	7,060	5,189	4,183	7,039	51,532	56,190	213
Burford	2,076	2,277	4,408	2,835	3,412	3,428	1,949	2,697	2,884	9,401	6,436	5,530	4,167	51,502	50,060	215
Dumfries, South	1,713	2,78	2,187	1,595	2,439	1,740	1,696	1,840	2,060	1,792	2,786	1,842	3,099	27,576	25,580	108
Oakland	324	29	102	112	171	227	64	167	180	275	142	165	453	2,672	10,700	30
Onondaga	755	462	826	1,022	1,405	3,775	703	1,329	704	1,113	791	1,311	683	14,877	13,940	69
Totals														148,159	156,470	635

PERTH.

Blanshard	3,067	3,181	4,201	3,899	4,538	4,016	1,994	3,157	2,680	3,837	4,579	4,268	5,382	48,799	27,420	138
Downie	5,226	3,412	4,684	3,907	5,707	5,162	4,394	2,951	3,035	2,788	4,553	2,806	6,297	54,922	29,605	124
Easthope, North	825	1,585	1,786	1,644	2,541	2,141	1,182	1,903	1,786	2,453	2,236	2,325	2,117	24,484	31,150	115
Easthope, South	1,572	1,460	1,722	1,649	1,716	2,115	1,687	1,508	1,399	1,607	2,053	3,215	1,778	23,481	19,870	70
Ellice	3,726	2,169	2,913	4,329	4,085	3,469	3,249	2,476	4,600	4,274	7,263	4,151	3,769	50,473	32,630	135
Elma	1,985	2,978	2,497	2,249	3,228	3,451	3,180	3,313	3,555	4,058	3,516	8,159	4,799	46,968	36,610	160
Fullarton	5,076	5,354	3,822	4,217	4,837	4,690	3,569	3,028	3,926	4,618	4,907	6,328	6,029	60,401	23,350	120
Hibbert	1,896	2,477	2,402	1,558	2,907	2,470	2,159	1,906	2,244	1,673	2,200	2,987	2,086	28,965	23,630	89
Logan	2,191	3,591	3,315	3,524	4,457	3,247	4,663	2,701	3,481	2,936	3,968	5,231	5,436	48,741	30,030	138
Mornington	2,181	4,543	4,149	3,585	3,271	2,730	2,124	3,535	3,733	4,038	3,827	3,644	4,942	46,302	29,560	150
Wallace	1,630	1,280	1,410	985	1,111	1,771	960	1,190	1,478	1,439	1,544	2,009	1,221	18,028	28,420	148
Totals														451,564	312,270	1,387

WELLINGTON.

Arthur	606	660	1,583	1,597	1,579	1,869	1,869	1,316	1,412	1,726	1,764	1,788	1,769	19,538	29,660	147
Eramosa	1,575	2,100	1,709	1,726	1,969	2,278	2,157	1,943	1,846	1,694	1,463	1,558	1,680	23,698	25,560	130
Erin	1,117	1,171	1,503	1,484	1,718	2,074	1,749	1,746	1,451	1,669	1,238	1,512	1,851	20,283	32,580	200
Garafraxa, West	1,619	1,527	2,978	2,032	2,250	1,553	2,373	1,960	4,059	2,829	4,938	1,925	2,511	32,554	32,410	141
Guelph	1,690	1,524	1,391	1,584	1,641	1,908	1,572	1,710	1,885	1,671	2,263	1,765	1,713	22,317	17,630	110
Luther, West	884	1,229	1,425	923	1,092	1,092	882	1,012	715	947	920	1,009	1,199	13,329	26,210	100
Maryborough	2,150	1,465	3,945	2,639	2,934	2,868	2,057	2,008	1,810	2,342	2,677	2,983	4,156	33,064	38,110	168
Minto	3,215	2,185	3,010	3,303	2,559	2,504	2,010	2,258	1,773	2,912	2,098	2,730	2,508	33,105	32,510	192
Nichol	525	417	815	432	776	1,476	646	766	938	1,160	917	745	710	10,323	12,960	90
Peel	1,528	2,352	2,257	1,836	4,149	4,313	2,700	2,202	2,524	2,396	3,357	2,005	3,130	34,749	53,080	165
Pilkington	1,024	1,439	1,544	927	962	1,339	1,225	1,120	905	1,390	1,468	1,269	924	15,536	17,230	90
Puslinch	2,313	1,621	1,527	2,320	1,433	1,650	1,004	1,619	1,480	1,800	1,474	1,377	1,710	21,328	39,340	200
Total														279,824	357,280	1,733

WATERLOO.

Dumfries, North	725	732	1,257	1,886	889	924	1,197	502	986	2,648	1,078	1,146	1,317	15,287	28,510	120
Waterloo	2,760	3,835	2,864	3,484	6,304	2,956	3,110	5,396	4,607	13,223	4,500	5,083	4,679	62,801	71,320	300
Wellesley	3,272	3,927	4,232	4,806	4,222	4,014	1,433	2,787	3,409	4,810	4,725	3,644	5,917	51,198	59,560	198
Wilmot	3,828	2,779	3,195	3,591	2,754	3,095	2,584	2,906	2,733	2,893	4,409	3,094	3,161	41,022	64,640	200
Woolwich	1,893	5,552	2,335	2,072	1,881	2,989	1,521	1,706	1,615	1,899	7,478	3,202	11,654	45,797	41,940	150
Totals														216,105	265,970	968

DUFFERIN.

Amaranth	1,978	1,449	1,677	1,489	1,113	1,296	1,545	1,959	1,167	1,636	2,172	1,463	1,838	20,782	28,310	150
Garafraxa, East	881	1,122	1,519	1,303	723	1,518	2,148	1,365	1,438	1,901	6,627	2,849	1,769	25,163	16,370	146
Luther, East	1,759	1,288	1,051	2,501	1,525	1,617	1,247	1,805	1,609	1,194	1,219	878	1,208	18,901	17,650	84
Melancthon	1,413	1,594	1,440	1,781	2,170	2,039	1,864	1,684	1,192	1,492	1,882	1,607	2,513	22,701	35,550	168
Mono	1,334	3,466	2,890	2,563	2,730	2,400	2,361	1,713	1,964	2,727	2,711	1,671	1,971	30,501	32,100	225
Mulmur	650	1,146	1,542	1,521	1,951	1,330	1,579	1,157	1,032	1,210	1,579	1,629	1,590	17,916	32,890	198
Totals														135,964	162,870	971

ROAD EXPENDITURE IN TOWNSHIPS– *Continued*

LINCOLN.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated road mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Caistor	423	484	615	970	1,323	811	765	452	1,095	735	423	1,068	1,308	10,472	20,200	84
Clinton	398	364	453	416	1,889	981	1,809	1,502	56	1,613	1,963	2,041	2,426	15,911	11,990	75
Gainsboro'	1,448	636	1,490	1,298	1,566	2,439	1,388	1,233	1,123	909	944	1,056	1,317	16,847	30,180	148
Grantham	572	661	911	1,076	1,323	1,277	1,079	1,159	548	1,060	1,353	1,092	666	12,777	24,950	54
Grimsby, North	428	574	798	2,114	1,778	1,138	1,247	1,775	1,435	1,784	1,596	2,314	1,691	18,672	18,770	60
Grimsby, South	393	208	852	473	991	765	400	1,011	1,083	347	1,229	901	1,400	10,053	10,840	60
Louth	1,277	409	260	1,117	1,568	1,389	975	1,935	1,167	2,189	1,433	1,551	1,986	17,256	24,840	90
Niagara	635	583	1,424	470	1,893	1,839	1,493	1,199	1,256	1,459	1,878	2,822	2,539	19,490	16,280	120
Totals														121,478	158,050	691

WENTWORTH.

Ancaster	8,556	4,559	3,670	3,136	4,035	4,543	2,513	4,823	3,119	5,089	6,381	6,077	6,064	62,565	34,450	125
Barton	891	1,408	911	582	845	2,478	1,815	2,026	1,777	2,478	3,065	2,496	2,176	22,948	24,020	39
Beverley	1,658	1,518	1,393	4,158	1,792	1,948	1,724	2,368	2,407	1,447	2,903	2,389	2,753	28,438	40,000	190
Binbrook	604	325	702	515	585	610	452	1,334	1,055	1,717	899	773	1,085	10,656	16,890	70
Flamborough, East	672	834	1,778	1,307	1,567	1,497	1,529	1,644	1,215	656	1,747	1,615	1,062	17,103	22,000	56
Flamborough, West	770	1,218	1,887	3,410	956	1,199	1,212	1,686	1,109	1,429	1,428	1,401	1,583	19,288	20,020	90
Glanford	362	235	488	922	834	904	490	575	474	660	904	283	687	7,818	14,540	69
Saltfleet	572	434	794	974	1,456	3,881	2,890	2,926	3,139	3,368	3,866	3,074	2,945	30,319	46,070	84
Totals														199,135	217,990	723

HALTON.

Esquesing	2,273	2,016	2,340	2,365	1,571	2,628	1,160	1,512	2,387	1,600	5,401	5,408	2,773	33,434	33,560	198
Nassagaweya	970	1,187	1,302	1,067	1,681	1,963	1,509	1,814	2,089	1,661	2,136	2,138	2,085	21,602	25,510	133
Nelson	1,158	1,478	1,945	1,328	1,175	1,823	1,200	1,607	2,529	1,638	1,980	3,286	3,636	24,683	29,600	138
Trafalgar	5,241	3,814	3,907	2,170	5,382	6,803	4,508	1,896	5,493	6,006	6,155	4,198	3,991	59,564	29,450	198
Totals														139,283	118,120	667

PEEL.

Albion	1,569	2,299	1,740	1,580	1,800	2,179	1,025	1,350	2,118	1,413	2,192	2,093	2,872	24,230	23,000	108
Caledon	1,120	2,640	976	856	2,406	1,804	1,180	1,346	1,131	1,058	2,989	2,959	5,787	26,252	41,920	200
Chinguacousy	2,192	3,570	4,040	2,040	3,017	2,165	2,060	2,256	3,936	4,297	5,749	2,342	2,952	40,616	39,470	240
Toronto	2,171	2,484	3,415	4,116	7,157	5,749	8,287	6,733	4,184	3,888	5,273	4,170	7,441	65,068	57,870	260
Toronto Gore	529	1,150	894	1,052	806	1,005	685	446	839	1,372	1,259	1,641	3,528	15,206	8,500	68
Totals														171,372	170,760	936

YORK.

Etobicoke	2,647	4,655	7,860	5,839	3,756	4,564	5,668	4,266	3,089	6,018	6,712	5,472	6,932	67,478	23,730	84
Georgina	709	986	272	583	446	703	467	778	782	937	743	1,036	1,023	9,465	19,210	80
Gwillimbury, East	2,069	2,257	1,618	1,690	1,740	2,334	1,932	1,903	1,448	1,575	1,882	2,205	2,218	24,871	35,940	130
Gwillimbury, North	793	563	526	541	458	592	493	555	500	385	416	647	418	6,887	21,120	90
King	8,763	8,513	5,148	6,100	6,144	5,287	5,551	7,087	5,607	5,894	3,963	4,692	3,634	76,383	48,670	211
Markham	2,323	2,917	4,092	3,219	2,984	3,982	4,058	2,852	2,453	4,003	5,683	4,370	3,512	46,428	49,340	201
Scarborough	1,571	3,342	3,106	2,972	3,355	4,492	3,814	2,746	3,238	4,223	5,337	4,944	3,928	47,038	21,440	126
Vaughan	6,215	7,651	4,456	6,133	4,532	5,526	4,962	6,473	5,600	6,289	9,743	5,131	5,969	78,480	35,160	201
Whitchurch	1,213	1,442	1,538	1,777	1,062	1,277	951	1,803	1,550	1,468	2,314	1,615	1,898	19,908	35,340	158
York	21,504	32,596	38,092	39,663	41,636	22,659	23,337	15,160	15,219	16,934	20,874	20,277	17,823	325,774	111,300	155
Totals														702,712	401,250	1,436

ONTARIO.

Brock	2,760	3,059	1,796	2,497	2,755	2,128	1,956	2,316	2,690	3,235	2,881	2,554	3,585	34,212	34,860	181
Mara	2,115	2,592	2,620	2,054	2,852	2,109	2,022	3,018	2,399	2,452	2,515	3,243	2,630	32,621	29,230	140
Pickering	4,493	20,077	10,544	3,302	4,363	3,977	3,549	3,408	2,840	4,422	4,410	7,983	6,967	80,335	99,930	275
Rama	990	519	938	583	590	730	786	732	1,725	1,158	464	810	855	10,880	9,870	110
Reach	1,877	3,144	2,356	2,000	1,560	1,693	1,692	2,054	1,995	1,652	1,736	2,026	2,776	26,561	42,300	130
Scott	1,838	2,304	1,855	2,028	1,906	2,137	1,483	1,763	1,458	1,250	1,392	1,131	1,705	22,250	20,020	120
Scugog	130	255	214	217	105	274	248	347	246	177	133	169	85	2,600	5,020	28
Thorah	1,468	2,066	2,075	1,342	1,664	1,539	1,603	1,482	1,897	1,362	1,422	1,328	1,754	21,002	15,640	102
Uxbridge	1,957	1,863	1,212	1,705	1,186	1,146	1,035	1,500	1,587	1,463	1,542	1,551	1,565	19,312	29,610	170
Whitby, E.	2,050	5,856	1,776	2,093	1,793	1,745	1,836	1,898	1,511	1,523	2,352	2,476	2,741	29,650	33,470	121
Whitby	1,015	13,593	3,462	1,355	1,296	1,282	922	1,597	1,296	1,408	1,877	2,863	2,627	34,593	20,910	130
Totals														314,016	341,460	1,507

DURHAM.

Cartwright	1,685	2,031	1,453	1,034	554	960	723	904	1,200	765	1,123	658	836	13,926	2,810	96
Cavan	1,351	1,626	1,397	1,815	2,562	1,784	1,168	2,011	1,724	1,768	2,286	1,840	2,224	23,556	35,650	189
Clarke	1,831	3,874	2,423	2,180	1,597	2,582	2,707	2,186	2,899	2,819	2,879	1,981	2,857	32,815	35,930	280
Darlington	3,029	5,012	2,207	2,908	2,743	4,306	2,973	3,930	3,224	3,211	3,659	3,557	4,053	44,812	60,000	204
Hope	1,423	2,839	1,885	1,973	1,371	1,720	1,765	1,674	2,461	1,881	2,276	1,726	1,947	24,941	10,830	189
Manvers	1,111	1,420	1,249	1,229	1,656	1,140	636	1,221	2,030	974	1,070	1,916	1,777	17,429	35,070	207
Totals														157,479	210,290	1,165

NORTHUMBERLAND.

														$ c.		
Alnwick	809	743	797.05	482.27	734.81	560	480	571	511	737	807	736	841	8,809.13	7,980	100
Brighton	1,082	1,303	1,077.00	842.00	1,119.22	1,402	826	1,397	1,459	1,356	1,428	1,781	1,601	16,673.00	37,360	150
Cramahe	817	1,638	871.00	723.00	794.00	1,191	1,165	1,248	1,206	1,000	1,644	1,493	889	14,679.00	28,770	15
Haldimand	3,894	4,456	3,012.00	3,312.00	2,565.00	4,290	2,405	2,817	1,577	2,238	2,275	2,965	3,289	39,095.00	47,210	203
Hamilton	7,417	4,093	2,732.00	2,564.00	1,879.00	2,665	1,424	1,848	2,439	2,437	2,436	2,623	2,758	37,315.00	48,560	183
Monaghan, S.	468	636	992.00	358.00	470.00	478	2,490	712	443	698	524	605	800	9,474.00	10,760	45
Murray	866	2,057	1,208.00	926.00	1,392.00	1,294	892	1,184	1,219	1,529	1,367	1,150	1,369	16,453.00	10,480	240
Percy	1,040	3,660	2,852.00	1,828.00	2,160.00	2,003	2,149	2,382	2,284	2,676	3,420	2,643	2,645	32,242.00	39,040	190
Seymour	1,338	1,895	3,018.00	1,282.00	4,363.00	5,725	1,465	1,220	1,458	4,103	5,420	4,476	3,667	39,430.00	26 120	198
Totals														214,170.13	277,900	1,344

ROAD EXPENDITURE IN TOWNSHIPS.—*Con.*

PRINCE EDWARD.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated road mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$		
Ameliasburg	545	648	492	993	451	553	312	230	843	424	1,977	1,710	738	9,916	28,070	100
Athol		3	25	127	184	93	4	36	11	8	47	148	253	939	21,330	69
Hallowell	346	621	380	138	465	222	561	833	698	588	603	1,440	1,034	7,929	52,510	129
Hillier	338	182	215	182	375	143	156	615	308	190	378	328	288	3,698	24,500	130
Marysburg, N	26	73	174	371	406	157	85	159	134	116	75	147	464	2,387	23,570	69
Marysburg, S	21	105	178	121	122	276	82	84	40	253	115	278	40	1,715	17,410	69
Sophiasburg	250	464	329	416	344	321	269	408	405	304	469	517	798	5,294	31,660	129
Totals														31,878	199,050	695

LENNOX AND ADDINGTON.

Adolphustown	233	222	205	191	201	181	194	254	227	244	211	173	263	2,799	4,000	20
Amherst Island	225	303	238	264	235	140	161	242	176	224	176	267	151	2,802	9,570	35
Camden, East	3,300	2,530	3,198	3,163	2,187	2,393	1,736	2,886	1,831	2,460	2,669	5,623	3,064	37,040	52,130	255
Denbigh, Abinger and Ashley	680	942	423	458	463	480	462	575	112	156	58	187	132	5,128	5,270	175
Ernesttown	2,628	1,625	2,170	2,491	2,310	2,290	1,161	1,671	1,622	1,360	1,813	1,952	2,060	25,153	34,750	60
Fredericksburg, N	452	867	838	593	654	402	633	2,634	524	2,156	1,205	1,027	1,230	13,215	24,330	70
Fredericksburg, S	542	464	651	856	671	1,063	678	600	922	947	758	689	1,025	8,866	10,290	45
Kaladar, Anglesea and Effingham	593	415	380	318	161	308	367	187	185	179	247	151	88	3,578	7,330	100
Richmond	1,861	2,218	1,883	1,779	1,220	1,801	891	1,670	1,456	1,426	1,658	1,870	1,803	21,536	20,060	150
Sheffield	1,040	1,411	1,082	1,234	660	1,096	559	965	511	674	536	562	517	10,847	26,060	185
Totals														130,965	193,790	1,095

FRONTENAC.

Barrie	27	34	18	96	29	34	17	61	20	42	10	26	56	470	3,850	50
Bedford	438	287	408	371	1,294	574	537	331	292	941	646	503	862	7,484	10,720	189
Clarendon, etc	97	35	47	14	57	55	83	66	14	132	70	96	65	831	7,610	100
Hinchinbrooke	390	314	507	515	908	441	412	580	613	870	712	972	722	7,956	11,470	90
Howe Island	171	100	48	10	12	61	18	17	21	6	79	59	162	764	2,960	25
Kennebec	470	324	173	174	323	630	175	301	194	499	365	250	165	4,043	7,460	90
Kingston	914	1,099	791	899	658	1,134	911	1,018	804	1,025	683	1,319	1,504	12,759	24,460	200
Loughborough	640	650	601	711	908	868	886	726	742	562	615	781	1,240	9,930	17,150	150
Olden	387	318	268	419	371	394	200	452	349	324	370	220	268	4,340	7,170	115
Oso	292	203	118	123	277	373	197	270	195	270	467	179	183	3,147	6,120	100
Palmerston, etc	252	124	246	119	186	43	58	65	214	158	283	189	150	2,087	6,760	90
Pittsburg	1,801	2,003	2,025	1,468	1,692	2,103	1,543	1,390	1,472	1,414	1,639	3,376	2,374	21,300	25,600	85
Portland	1,716	1,129	975	1,431	1,485	1,095	800	971	755	867	1,088	942	1,356	14,610	6,560	250
Storrington	166	300	273	359	448	457	127	455	450	371	580	487	376	4,849	17,950	100
Wolfe Island	159	502	50	419	412	247	461	79	262	220	610	360	757	4,538	14,000	90
Totals														102,108	169,840	1,724

LEEDS.

Bastard and Burgess	300	378	258	230	230	395	270	663	438	647	686	682	1,126	6,303	31,230	205
Crosby, N.	398	342	406	432	564	676	1,031	490	534	677	843	402	971	7,766	9,000	132
Crosby, S.	263	97	307	216	133	169	537	669	539	558	516	409	391	4,804	18,450	111
Elizabethtown	2,758	4,144	2,225	1,835	2,527	2,564	2,861	2,733	2,875	2,795	2,136	2,458	1,973	33,879	46,740	225
Elmsley, South	436	262	348	317	416	527	356	453	585	388	254	285	1,556	6,182	6,690	66
Kitley	876	623	593	1,256	736	738	626	680	509	1,109	1,195	1,546	1,199	11,686	19,370	100
Leeds and Lansdowne, Front	2,937	11,770	2,654	3,100	3,114	3,477	2,908	2,635	3,410	3,947	3,735	4,709	5,788	54,184	35,000	150
Leeds and Lansdowne, Rear	621	732	271	832	843	573	655	826	842	588	705	1,388	1,615	10,491	8,850	100
Yonge and Escott, Front	920	985	821	904	751	676	709	738	649	2,841	3,016	1,938	1,536	16,484	24,080	165
Yonge and Escott, Rear	84	117	60	39	89	91	112	112	62	196	208	540	271	1,981	13,610	50
Totals														153,761	213,420	1,304

GRENVILLE.

Augusta	1,747	2,476	2,237	2,025	2,097	1,771	1,915	1,642	1,830	1,809	800	1,443	1,417	23,209	37,350	222
Edwardsburg	2,026	1,638	2,133	1,594	1,852	1,227	1,850	1,159	1,633	1,046	1,341	1,701	1,053	20,253	40,480	300
Gower, South	170	380	245	128	347	322	233	703	374	108	230	292	366	3,898	10,220	60
Oxford	488	1,035	793	1,967	1,412	1,311	702	1,035	365	403	187	936	1,660	12,594	38,820	177
Wolford	94	198	317	523	380	226	674	509	450	349	319	436	320	4,795	24,060	138
Totals														64,749	150,930	897

DUNDAS.

Matilda	4,149	3,876	1,252	1,470	2,577	1,840	1,452	1,513	1,309	1,446	1,923	2,055	2,097	26,959	56,690	125
Mountain	1,627	1,967	1,177	993	1,688	1,328	1,428	4,307	3,357	1,041	1,729	3,341	6,709	30,692	34,210	100
Williamsburg	1,352	1,309	973	1,512	1,056	1,676	999	1,370	1,076	1,065	4,075	4,207	2,580	23,250	49,090	177
Winchester	4,347	2,636	983	1,572	2,471	2,262	2,736	3,397	2,629	2,918	2,750	4,027	2,985	35,713	38,730	168
Totals														116,614	178,720	570

STORMONT.

Cornwall	3,470	3,132	2,210	2,204	1,986	2,239	2,288	1,831	2,357	3,018	2,220	2,870	5,980	35,805	54,450	145
Finch	3,689	8,438	2,653	2,676	2,243	3,099	2,681	2,847	1,712	1,103	1,678	3,948	4,346	41,113	31,710	130
Osnabruck	1,970	1,832	1,386	1,467	1,225	1,179	1,536	1,575	662	1,078	3,261	2,789	2,352	22,312	55,990	185
Roxborough	1,240	2,463	2,385	1,468	1,371	1,379	1,437	1,445	1,583	1,391	1,980	2,059	2,435	22,636	36,350	200
Totals														121,866	178,500	660

GLENGARRY.

Charlottenburg	2,188	2,518	2,572	7,220	7,865	2,399	2,126	1,532	895	2,614	3,194	1,016	4,064	40,203	19,990	290
Kenyon	1,553	1,264	1,910	982	2,925	1,600	992	1,325	1,414	1,866	1,236	1,929	2,719	21,715	40,780	231
Lancaster	848	1,446	1,516	1,376	1,480	1,535	936	2,022	848	1,541	1,274	1,753	2,856	19,431	30,140	171
Lochiel	709	1,302	1,187	1,771	1,215	1,698	819	1,142	1,607	1,545	1,696	1,177	1,888	17,756	17,600	200
Totals														99,075	108,510	892

ROAD EXPENDITURE IN TOWNSHIPS.—*Continued.*

PRESCOTT.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated road mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Alfred	2,080	639	242	795	1,142	807	1,174	1,016	989	941	1,546	600	745	12,716	15,820	100
Caledonia	313	387	693	582	632	533	520	763	1,477	525	715	352	1,110	8,602	15,660	132
Hawkesbury, East	804	844	692	967	591	480	755	836	732	469	302	1,009	810	9,291	29,670	115
Hawkesbury, West	473	232	384	326	358	177	367	414	199	267	246	302	544	4,289	13,760	75
Longueuil	71	217	78	137	124	58	52	91	36	120	56	151	94	1,285	8,790	30
Plantaganet, North	1,628	1,248	849	1,208	1,405	2,146	795	1,509	1,100	888	1,312	1,666	3,316	19,070	20,030	100
Plantaganet, South	1,156	1,470	1,097	1,062	2,189	660	1,003	1,250	1,561	1,212	1,437	1,682	2,376	18,155	22,710	150
Totals														73,408	126,440	702

RUSSELL.

Cambridge	994	1,912	968	1,188	1,049	843	1,053	1,047	1,779	1,062	3,103	2,093	12,274	29,365	23,220	100
Clarence	1,752	2,166	993	1,258	1,651	2,168	1,794	2,415	1,494	1,582	2,326	1,649	2,661	23,909	27,190	100
Cumberland	787	1,973	1,769	2,480	3,493	2,865	3,778	2,747	3,185	2,564	2,333	1,261	2,312	31,547	31,040	150
Russell	1,019	1,262	1,960	4,285	1,481	3,142	1,508	1,871	2,252	1,448	1,426	2,638	2,752	27,044	28,320	150
Totals														111,865	109,770	500

CARLETON.

Fitzroy	1,066	965	985	1,472	1,804	1,543	1,337	1,840	2,575	2,059	2,273	2,176	1,757	21,852	18,450	150
Gloucester	1,053	1,099	1,143	1,439	1,911	2,053	1,199	2,435	2,348	1,869	2,198	3,568	8,029	30,344	42,940	255
Goulbourne	493	917	679	701	753	1,191	1,453	1,148	1,171	1,187	1,154	1,515	2,705	15,068	25,280	192
North Gower	824	423	760	747	1,002	1,194	1,175	1,013	649	798	907	982	1,385	11,859	18,040	80
Huntley	708	955	1,500	804	746	1,307	1,427	662	688	615	1,289	1,345	4,375	16,421	13,290	180
March	191	372	253	192	284	366	380	162	372	393	504	408	273	4,150	9,210	84
Marlborough	268	307	373	475	568	147	312	354	572	918	582	373	271	5,520	16,900	168
Nepean	1,979	2,463	1,280	1,848	2,356	1,939	1,375	2,104	2,432	1,415	2,799	2,171	2,100	26,261	28,240	184
Osgoode	1,653	1,622	1,268	1,449	1,437	2,011	1,747	1,837	2,496	2,848	2,070	3,378	3,636	37,452	44,800	273
Torbolton	267	228	192	235	213	245	255	586	429	162	297	316	296	3,721	4,000	78
Totals														162,648	221,150	1,644

RENFREW.

Admaston	152	433	255	294	336	451	1,065	1,602	479	254	1,188	649	1,139	8,297	13,690	80
Algona, South	75	25	23	30	58	10	10	31	4	10	22	35	39	372	3,350	60
Alice, etc	208	501	243	281	152	278	149	298	221	252	214	141	226	3,164	8,750	120
Bagot and Blythefield	3,231	236	531	370	445	375	447	142	706	552	299	326	290	7,950	6,450	150
Bromley	244	281	281	469	346	433	661	565	723	474	463	300	736	5,976	11,830	100

Brougham	30	57	35	65	22	.....	4	.....	16	.....	140	136	20	525	2,580	54
Brudenell and Lyndoch	77	51	12	140	141	26	186	43	171	176	103	137	108	1,371	6,360	80
Grattan	289	180	154	180	592	500	206	355	296	142	94	271	223	3,482	6,830	160
Griffith, etc	68	92	103	70	97	93	255	58	71	56	28	146	20	1,157	2,800	120
Hagarty, et al	120	217	127	669	505	384	216	160	357	186	736	329	872	4,878	7,550	180
Head, et al	85	.....	9	6	4	.....	.....	.....	.....	.....	4	44	1	153	3,160	50
Horton	123	201	241	153	451	180	368	252	495	269	101	411	352	3,597	10,360	111
McNab	391	2,136	725	1,130	1,022	3,214	821	585	1,431	3,864	606	1,953	1,692	19,570	22,920	150
Pembroke	101	83	.....	50	29	210	117	136	317	161	70	87	641	2,002	5,670	24
Petewawa	188	37	124	169	227	132	62	6	107	.....	28	135	339	1,554	3,630	50
Radcliffe and Raglan	255	161	150	122	62	94	225	79	65	139	167	221	238	1,978	4,470	60
Rolph, Buchanan and Wylie	50	60	45	8	91	43	16	50	19	9	22	43	16	472	4,840	100
Ross	203	313	319	942	959	721	554	691	853	536	969	721	775	8,556	12,000	150
Sebastopol	38	66	57	72	14	63	84	62	40	46	48	112	34	736	3,080	55
Stafford	94	211	173	267	106	133	262	209	243	157	189	140	412	2,596	7,350	60
Westmeath	2,471	828	925	1,011	514	1,095	1,117	1,282	1,104	2,240	1,290	925	854	15,656	16,070	200
Wilberforce	176	224	244	258	476	571	520	337	391	322	550	562	443	5,074	11,130	180
Totals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	99,116	174,820	2,294

LANARK.

Bathurst	403	594	657	319	685	304	463	405	682	671	626	701	348	6,858	25,000	180
Beckwith	595	776	1,078	878	1,067	1,227	1,769	1,469	1,485	1,061	1,874	1,900	1,010	16,189	15,000	150
Burgess, North	159	109	133	123	107	204	91	159	98	168	172	193	552	2,268	6,580	20
Dalhousie, etc	479	891	1,037	928	871	783	829	800	587	799	594	832	843	10,273	17,340	200
Darling	171	163	93	123	84	91	70	190	355	65	68	178	150	1,801	6,640	50
Drummond	631	784	672	783	988	1,541	749	786	1,542	1,098	753	1,753	2,314	14,394	20,110	80
Elmsley, North	532	206	297	313	467	1,155	212	253	201	303	620	330	474	5,363	5,900	60
Lanark	359	466	707	687	514	610	513	390	297	405	279	468	776	6,471	15,550	175
Lavant	275	395	306	203	113	69	210	237	437	295	104	151	62	2,857	5,540	50
Montague	268	308	545	1,008	246	576	662	672	779	423	903	932	763	8,085	20,380	150
Pakenham	1,068	807	772	915	996	1,748	1,054	1,020	1,248	685	1,690	1,041	18,059	31,103	13,190	120
Ramsay	1,153	1,263	976	797	1,328	1,955	1,592	1,875	1,571	1,250	4,964	2,876	2,299	23,899	21,510	150
Sherbrooke, South	315	265	58	144	163	261	154	240	210	112	175	117	95	2,309	6,770	90
Total	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	131,870	179,510	1,475

VICTORIA.

Bexley	104	41	149	111	171	.....	150	640	121	107	302	237	211	2,434	7,690	60
Carden	162	148	628	353	193	165	284	83	79	207	262	405	72	3,041	4,800	90
Dalton	116	221	220	235	223	190	194	258	137	74	258	257	285	2,668	3,520	50
Eldon	766	1,273	1,694	1,237	1,428	1,649	950	1,771	1,359	1,551	1,647	1,993	1,513	18,831	25,860	200
Emily	2,025	2,188	1,909	1,480	1,738	1,375	576	747	1,173	1,602	2,035	5,563	1,840	24,251	23,440	160
Fenelon	724	926	509	699	612	567	702	816	2,247	888	1,170	1,475	1,146	12,481	23,680	150
Laxton, etc	4	7	189	99	55	146	201	256	230	186	124	337	201	2,035	5,190	60
Mariposa	2,004	2,251	2,074	1,187	2,135	1,387	1,647	2,558	1,839	1,218	1,823	3,474	3,821	27,418	40,710	225
Ops	2,403	3,224	3,449	3,001	3,449	4,318	3,475	3,624	3,293	3,316	4,374	3,794	3,901	45,621	28,510	180
Somerville	681	268	1,396	618	645	571	989	524	496	775	659	605	726	8,953	14,250	150
Verulam	1,217	1,384	1,583	2,214	1,532	2,047	714	963	480	2,032	444	1,695	1,247	17,552	18,260	200
Totals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	165,285	195,910	1,525

ROAD EXPENDITURE IN TOWNSHIPS.—*Continued.*

PETERBOROUGH.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated road mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Asphodel	1,210	1,386	855	925	2,072	880	729	931	1,122	1,948	1,411	1,291	1,038	15,798	15,360	111
Belmont, etc	1,399	1,709	1,485	1,082	688	310	738	795	791	838	1,175	1,036	944	12,990	10,410	200
Burleigh, etc	298	270	244	325	425	284	104	116	109	93	29	24	19	2,338	2,300	100
Chandos							240	273	157	83	123	67	113	1,056	5,900	
Douro	907	1,587	1,005	889	1,129	1,193	1,043	1,072	919	1,105	1,317	1,272	1,162	14,600	14,110	221
Dummer	538	709	626	678	725	729	860	992	841	741	941	826	1,063	10,269	15,680	156
Ennismore	446	503	634	479	96	390	514	307	370	112	258	110	203	4,422	8,370	100
Galway, etc	174	81	240	261	141	185	25	55	20	6	8	1	17	1,214	3,300	120
Harvey	655	362	328	389	374	549	312	557	327	414	334	225	214	5,020	8,340	94
Monaghan, North	211	368	413	366	559	243	271	695	1,156	1,298	1,522	1,310	964	9,376	7,740	40
Otonabee	1,979	2,234	2,422	2,232	2,359	2,340	2,149	2,940	2,146	2,702	2,649	3,363	3,733	33,248	30,710	200
Smith	1,507	1,543	2,514	1,460	1,377	1,630	1,574	2,311	1,782	1,810	2,693	2,211	2,349	24,761	28,720	150
Totals														135,092	150,940	1,492

HALIBURTON.

Anson and Hindon	147	185	16	88	107	84	40	128	138	99	127	107	103	1,369	1,410	30
Cardiff	152	193	147	99	57	188	80	24	29	89	187	64	98	1,407	3,350	76
Dysart, etc	574	700	1,068	728	1,831	782	689	1,036	701	1,045	855	1,635	1,254	12,898	8,790	200
Glamorgan	299	170	107	41	132	63	42	135	89	53	182	87	141	1,541	2,410	100
Lutterworth	121	94	98	141	283	108	111	108	134	151	213	126	314	2,002	3,330	60
Minden	339	174	208	353	592	208	564	537	477	484	300	379	527	5,192	6,880	108
Monmouth	33	102	48	36	38	61	8	66	73	62	36	8	119	690	3,060	50
Sherborne, McClintock, Livingston &c										118	783	564	718	2,183		
Snowdon	207	175	189	419	486	179	523	288	263	197	237	166	196	3,525	4,500	105
Stanhope, etc	156	81	91	90	126	50	127	266	264	116	102	142	84	1,695	4,130	80
Totals														32,502	37,860	809

HASTINGS

Bangor, etc	437	204	255	218	269	178	274	177	171	344	237	286	294	3,344	4,350	84
Carlow (and Mayo)	(165	234)	138	143	233	604	223	322	224	231	241	289	421	3,468	3,770	50
Dungannon (and Faraday)	(539	490)	278	220	239	217	217	240	207	230	205	211	256	3,549	4,800	100
Elzevir, etc	198	253	278	245	829	651	333	308	485	317	685	669	523	5,774	7,880	72
Faraday			324	301	346	374	365	221	235	375	369	354	756	4,020	6,370	75
Hungerford	1,578	1,491	1,315	1,889	1,220	1,209	705	793	1,237	1,378	1,586	1,009	1,495	16,905	34,240	175
Huntingdon			233	207	243	257	325	284	263	336	273	266	288	2,975	22,270	50
Limerick	435	299	761	804	583	742	690	327	446	226	324	353	291	6,281	2,590	50
Madoc	462	509	532	523	808	651	493	592	493	627	486	378	615	7,169	20,600	100
Marmora and Lake	609	455	865	997	1,406	849	448	603	693	683	750	1,122	725	10,205	14,420	75
Mayo			146	165	258	213	220	231	247	238	288	279	270	2,555	2,670	48
Monteagle and Herschel	456	670	462	950	650	129	409	298	359	358	507	261	324	5,833	10,350	50
Rawdon	604	414	819	758	709	586	535	370	471	613	626	785	773	8,063	32,730	150
Sidney	211	816	970	496	575	425	504	1,126	713	932	927	2,314	3,149	13,158	14,250	200
Thurlow	941	465	638	773	788	973	1,263	1,464	1,495	1,602	1,613	1,451	1,862	15,328	48,970	120

Tudor and Cashel	313	475	366	416	528	497	478	460	422	393	567	581	660	6,156	4,280	100
Tyendinaga	1,175	2,229	1,125	1,074	1,180	1,203	1,131	1,046	1,078	1,353	1,199	878	1,139	15,810	43,320	200
Wollaston	398	305	260	428	330	332	468	440	352	454	580	451	473	5,249	3,540	50
Totals														135,842	281,400	1,749

MUSKOKA.

Brunel	160	175	281	454	455	398	589	389	343	592	202	728	722	5,488	3,360	120
Cardwell	49	62	145	206	138	41	97	112	110	195	107	215	254	1,731	3,970	60
Chaffey	320	408	432	398	375	554	346	489	596	524	378	511	534	5,865	8,430	250
Draper	955	404	575	609	493	600	427	851	607	325	1,295	611	1,006	8,758	7,080	59
McLean and Ridout	248	78	94	121	179	158	357	390	221	250	271	202	564	3,133	5,610	90
Macaulay	905	409	331	327	565	728	771	820	691	758	422	675	1,128	8,530	6,890	100
Medora and Wood	240	683	559	460	363	675	873	601	892	669	700	977	1,557	9,249	8,330	100
Monck	321	379	308	296	279	376	435	355	356	348	525	658	1,153	5,789	8,410	40
Morrison	92	334	416	189	516	337	331	284	220	347	215	305	289	3,875	5,890	60
Muskoka	465	310	283	381	494	211	224	433	371	352	222	604	729	5,079	5,340	84
Oakley	375	423	244	234	319	243	218	295	35	41	274	248	326	3,275	2,660	41
Ryde	131	268	179	90	323	233	157	223	165	108	110	109	294	2,390	4,850	38
Stephenson	472	384	491	746	767	950	741	625	906	506	463	947	2,132	10,130	7,980	120
Stisted	422	517	410	276	160	320	307	351	527	382	353	485	391	5,201	5,720	132
Watt	155	165	222	353	245	195	367	225	377	482	192	253	343	3,574	8,190	105
Totals														$82,067	$92,710	1,399

PARRY SOUND.

Armour		71	212	279	198	204	117	157	317	341	46	354	202	2,498	9,530	90
Carling										30	25	43	252	350		
Chapman		60	46	62	16	461	64	371	246	152	202	94	261	2,035	7,700	48
Christie								38	123	230	199	429	110	1,129	3,720	45
Foley	121	210	147	110	202	214	347	125	174	227	130	324	336	2,697	4,390	80
Hagerman		26	29	30	20	127	113	86	53	119	74	62	131	870	3,730	23
Himsworth, N	146	104	381	150	263	249	137	339	146	121	175	107	228	2,546	1,110	15
Himsworth, S		73	48	487	179	118	187	183	206	342	196	500	623	3,142	12,710	60
Humphrey	156	132	170	339	388	227	226	295	196	185	234	142	277	2,967	5,080	60
Joly			106	107	28	123	137	43	6	69	61	34	138	852	3,830	60
McDougall	248	206	195	275	179	342	324	375	249	272	458	169	428	3,720	4,240	75
McKellar	240	180	191	246	198	468	452	751	104	357	230	270	268	3,955	5,860	70
McMurrich			56	139	157	130	140	282	300	335	99	251	262	2,151	8,780	60
Machar		29	134	120	45	146	234	171	166	101	140	212	302	1,800	8,700	60
Nipissing	69		285	130	125	2	51	48	56	31	32	106	53	988	6,350	30
Perry	42	161	282	287	362	560	208	119	315	349	394	453	441	3,973	12,810	120
Ryerson	23	49	160	8	140	76	125	110	174	102	84	261	259	1,571	6,850	80
Strong	74	254	469	93	230	255	90	342	283	60	340	154	205	2,849	7,640	90
Totals														$40,093	$113,030	1,066

NIPISSING.

Bonfield	180	103	226	77	25	74	248	319	318	259	204	206	658	2,997	6,880	75
Caldwell						184	230	194	228	45	123	274	1,192	2,470	4,190	15
Calvin	72			31	41	31	50	48	49	10	80	18	229	662	4,130	65
Cameron	72	10	9			308		14	10	17	34	21	14	509	1,870	25
Ferris	78	108	52	91		19	26	13	100	70	204	249	390	1,373	6,000	45
McKim	2,889	5,095	3,283	1,355	307	478	841	658	359	367	1,077	827	515	17,996	2,300	15
Mattawan		44	73	45	49	13	57	11	1	28	85	42	48	496	2,570	15
Papineau	135	30	31	41	61	17	24	2	25	3	7	1	9	388	3,850	50

ROAD EXPENDITURE IN TOWNSHIPS.—*Continued.*

NIPISSING.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute labor in 10 years previous to 1896.	Estimated road mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Ratter and Dunnet									62	186	399	14	139	800		
Springer	576	822	503	1,237	784	1,122	1,605	454	441	186	269	1,082	1,054	10,135	5,360	75
Widdifield	3,347	1,551	219	183	165	238	137	240	212	181	360	395	672	7,900	2,880	90
Totals														$45,726	$40,030	470

MANITOULIN.

Assiginack	61	172	47	37	67	208	302	297	457	326	257	346	319	2,896	8,610	90
Billings	69	34	46	46	76	100	284	54	28	241	181	189	45	1,393	4,760	60
Burpee				34	70	23	106	36	29	36	8	14	14	370	1,390	30
Carnarvon	42	214	312	92	25	198	75	57	263	55	113	261	158	1,865	3,000	75
Cockburn Is	500	162	217	135	112	230	2	150	72	18	5		52	1,655	1,600	20
Gordon	154	125	116	44	194	83	102	175	450	164	250	269	411	2,537	2,790	75
Howland	277	5	87	104	405	82	109	118	284	117	182	97	582	2,449	7 670	75
Sandfield	34	68	3			22		25	50	6	27	10	57	302	1,970	45
Tehkummah	41	36	30	72	108	49	82	29	131	57	110	200	145	1,090	3,730	60
Totals														$14,557	$35,520	530

ALGOMA.

Balfour		49	105	104	199	386	355	338	157	250	481	345	258	3,027	3,710	27
Drury, Denison and Graham						24	69	161	331	604	190	299	417	2,095	1,970	
Hallam					64	200	919	912	242	263	154	367	274	3,395	3,960	36
Hilton	28	96	24	48	122	195	72	120	185	92	335	376	181	1,874	3,350	35
Jocelyn	43	76	119	5	7	239	110	88	132	242	313	491	203	2,068	5,330	36
Johnston, etc		23	125	67	44	621	257	294	169	415	388	252	367	3,022	6,570	30
Laird				104	44	194	137	125	131	47	466	99	385	1,732	7,080	27
Macdonald, etc				9	115	273	131	229	267	210	282	221	420	2,157		51
Nairn								9	18		2		5	34	520	
Plummer, etc				143	110	120	362	163	299	254	90	222	1,449	3,212	3,470	14
Prince									5	5	118	23	100	251		
Rayside			118	117	81	37	71	94	111	369	139	502	135	1,774	2,580	30
St. Joseph's	115	399	374	322	265	335	822	734	709	326	644	497	735	6,277	5,370	75
Salter, etc						25	123	398	267	293	167	207	382	1,862	4,460	75
Sault Ste. Marie	762	2,078	1,469	1,376	1,012	1,187	1,084	2,127	2,289	1,815	2,650	3,462	6,552	27,863	7,380	100
Thessalon	33	340	1,002	192	101	186	282	358	199	256	333	405	715	4,402	6,100	41
Totals														$65,045	$61,850	577

ROAD EXPENDITURE IN TOWNSHIPS.—*Concluded.*

THUNDER BAY.

Name of Township.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	Total.	Statute Labor in 10 years previous to 1896.	Estimated road mileage.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Neebing	3,823	3,472	19,457	7,594	7,728	2,646	496	506	825	384	578	1,025	582	49,116	.....	100
Oliver	438	448	149	146	133	134	154	297	156	254	244	334	391	3,278	3,320	90
Shuniah	2,669	3,244	7,815	529	715	475	42	780	235	297	323	852	644	18,620	.....	20
Schreiber	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4	.....	.....
Totals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$71,018	$3,320	210

RAINY RIVER.

Alberton	.....	.....	.....	.....	.....	.....	348	699	325	.....	30	265	290	1,957	2,690	30
Keewatin	1,463	1,668	717	291	1,476	110	124	482	240	781	618	2,516	1,284	11,770	.....	10
McIrvine	.....	.....	.....	.....	.....	.....	.....	.....	.....	623	856	1,188	1,650	4,317	.....	.....
Van Horne	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22	23	20	65	.....	.....
Totals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$18,109	$2,690	40

SUMMARY.

County.	Total money expended 1889-1901.	Statute Labor 10 years.	Road mileage.
	$	$	
Essex	328,452 00	259,990	1,198
Kent	292,553 00	284,380	1,681
Elgin	431,812 00	255,800	1,238
Norfolk	157,832 00	227,130	1,237
Haldimand	98,087 00	196,680	882
Welland	94,958 00	221,160	897
Lambton	476,975 00	319,790	1,906
Huron	468,782 00	460,330	2,217
Bruce	370,169 00	412,860	2,261
Grey	386,298 00	526,340	2,685
Simcoe	348,860 00	494,200	2,736
Middlesex	805,182 00	485,290	2,234
Oxford	401,096 00	372,770	1,307
Brant	148,159 00	156,470	635
Perth	451,564 00	312,270	1,387
Wellington	279,824 00	357,280	1,733
Waterloo	216,105 00	265,970	968
Dufferin	135,964 00	162,870	971
Lincoln	121,478 00	158,050	691
Wentworth	199,135 00	217,990	723
Halton	139,283 00	118,120	667
Peel	171,372 00	170,760	936
York	702,712 00	401,250	1,436
Ontario	314,016 00	341,460	1,507
Durham	157,479 00	210,290	1,165
Northumberland	214,170 13	277,900	1,344
Prince Edward	31,878 00	199,050	695
Lennox and Addington	130,965 00	193,790	1,095
Frontenac	102,108 00	169,840	1,724
Leeds	153,761 00	213,420	1,304
Grenville	64,749 00	150,930	897
Dundas	116,614 00	178,720	570
Stormont	121,866 00	178,500	660
Glengarry	99,075 00	168,510	802
Prescott	73,408 00	126,440	702
Russell	111,865 00	109,770	500
Carleton	162,648 00	221,150	1,644
Renfrew	99,116 00	174,820	2,294
Lanark	131,870 00	179,510	1,475
Victoria	165,285 00	195,910	1,525
Peterborough	135,092 00	150,940	1,492
Haliburton	32,502 00	37,860	809
Hastings	135,842 00	281,400	1,749
Muskoka	82,067 00	92,710	1,399
Parry Sound	40,093 00	113,030	1,066
Nipissing	45,726 00	40,030	470
Manitoulin	14,557 00	35,520	530
Algoma	65,045 00	61,850	577
Thunder Bay	71,018 00	3,320	210
Rainy River	18,109 00	2,690	40
Total	10,117,576 13	10,947,110	60,771

STATEMENT.

Average yearly money expenditure	$778,213 55
" " Statute labor (days)	1,094,711 00
Total yearly value, money and labor	$1,872,924 55

(*Sessional Paper No. 29.*)

Report of
The Bureau of Labour
For the Year
1903

Presented to the Legislature, 24th March, 1904

On account of loss of the original by fire this Report has been delayed and will appear in

Vol. XXXVII., Part VIII., 1905.

REPORT

OF THE

ONTARIO

GAME COMMISSION

FOR THE YEAR 1903

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

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REPORT

OF THE

ONTARIO GAME COMMISSION

1903.

His Honor the Lieutenant-Governor of the Province of Ontario:

Sir,—We, your Commissioners, beg to present to you the Twelfth Annual Report of the Ontario Game Commission.

We regret that owing to the wet and cold weather during the hatching season, our upland game birds suffered severely. In the Counties of Essex, Kent, Middlesex and Lambton we started out in the spring with a good crop of old birds, and sportsmen looked forward with hopeful feelings to the fall months; but in many districts where quail and partridge had been fairly plentiful for several years past, not a bird was to be found; clearly showing the disastrous results of the unfavorable weather during the nesting season.

Your Commissioners feel greatly concerned about the future of that gamiest of all game birds, the Quail; and they have had under consideration several plans for keeping up a fair stock of birds in the Province. The experiment of breeding them in confinement for turning down purposes will be tried this year on a small scale, and if successful we hope to be able to establish hatcheries in different counties.

Owing largely to the destruction of their haunts, Woodcock have become all but extinct in many parts of the Province; but where local conditions are favorable, fair bags of these beautiful game birds were made this fall. The same remarks apply to Snipe.

Favorable reports have been received from many of the Duck preserves; and, while on the whole, duck may not have been as plentiful as they were in the season of 1902, still good sport was had throughout the season. It is gratifying to know that the Black Duck is coming to use in increasing numbers year by year; and as this duck is considered by many to be among the best for the table, we trust that the present good stock will be maintained.

Last fall your Commissioners made an importation from Europe of that noble game bird, the Capercailzie. The birds were set at liberty in the Algonquin Park, a spot considered by those competent to judge, admirably adapted by Nature for their requirements. The results will be anxiously watched, and if the birds do well they will prove a very valuable addition to the game birds of the Province. In this connection much valuable information and assistance was rendered by one of your Commissioners, Mr. H. S. Osler, K.C., of Toronto.

The Province is to be congratulated on the abundance of Deer and Moose in our northern country. Sportsmen in increasing numbers are coming to us every season from

England and the United States to enjoy the invigorating sport of hunting the antlered monarch of our forests ; and with a fair amount of protection a good head of game will be assured for many years to come, and prove a source of revenue, not only to the settlers in our newly-opened-up districts, but also to the Province.

The fact that 259 non-resident licenses and 5,707 deer-hunting and 153 moose licenses were issued this season is sufficient evidence of the popularity of Ontario as a sportsman's paradise, and of the valuable asset we possess in our game.

The Canadian Express Company report having carried during the season of 1903 the large number of 2,950 carcasses of deer, and the Dominion Express Company 416, making a total of 3,366, an increase of 176 over the season of 1902. Ninety-three head of moose are reported killed by licensed hunters. These figures give but an inadequate idea of the total number killed during the season.

It is very gratifying to report that the Beaver, the most intelligent and valuable of our fur-bearing animals, is increasing in numbers in some sections of the Province. But Otter are still reported to be very scarce.

Your Commissioners beg to place themselves on record as being opposed to the use of automatic and repeating shotguns for sporting purposes. In a country where, from natural causes, our game birds are becoming scarcer year by year, the use of all such firearms should be discouraged and discountenanced by all true sportsmen.

Your Commissioners beg to express their appreciation of the highly-intelligent and painstaking manner in which the Chief Game Warden, Mr. E. Tinsley, continues to discharge the duties of his office. Through his assiduity his Department shows most gratifying increases, financially, year by year. During the year 1903 the receipts from all sources were $19,505.82, and the expenditure $9,308.10, leaving a net balance to the Province of $10,197.72, being nearly $3,000 in excess over that of last year.

All of which is respectfully submitted.

MONTAGUE A. A. SMITH,
Chairman Ontario Game Commission.

REPORT OF THE CHIEF GAME WARDEN.

Toronto, January, 1904.

Montague A. A. Smith, Esq., Chairman Ontario Game Commission :

Sir,—I herewith respectfully submit for the consideration of yourself and members of the Ontario Game Commission my report of the work of the Commission for the year ending December 31st, 1903. Also those of the Wardens having charge of the respective districts into which the Province has been divided for the purpose of game protection. You will, as in past years, find copies of orders in Council and the usual statistics, with resume of the increased work of the Commission, and the satisfactory results, which, I venture to hope, will have the approval of yourself and colleagues.

Wardens.

In former reports I felt it my duty to draw to the attention of the Commission that wardens in charge of the several districts are only expected to devote a portion of their time to the work of the Commission, and only remunerated in accordance with such arrangements. This system of paying the wardens was no doubt justified, while the work of the Commission was to some extent an experiment, and a large proportion

of the cost came from the general funds of the Province. The time has now arrived, owing to the large number of tourists who spend their summers in the northern districts of the Province, and also the opening up of new districts, equally available to tourists, lumbermen, hunters and poachers, when it is necessary for the protection of our large game and partridge, that the wardens should devote their whole time to the increased work of the Commission, and remunerated accordingly. In recommending this I do so, feeling sure the increased cost in salaries would be fully repaid from the more effective work they would be able to perform, and our large game, which is becoming such a factor in the tourist business, would be more effectively protected. As in past years, I have received most valuable assistance from the Inspectors and Provincial officers of the Attorney-General's Department, and also from the Rangers, Crown Land Agents, and other employees of the Department of Crown Lands. In my last year's report I took the liberty of drawing your attention to the urgent necessity of having two more salaried wardens appointed for the Nipissing and Algoma districts, in consequence of the influx of settlers, miners, and others in these remote districts, and that I had reason to believe that much illegal killing of large game occurred in those districts, beyond the reach of our present staff of wardens. The necessity for these appointments is still urgent.

Deputy Wardens.

Thirty-eight deputy wardens have been appointed during the year, the number on the list being 320. Most of these appointments have been made in the northern districts, where most required. As a rule, most of them have discharged their respective duties effectively.

Game Laws.

From the reports of wardens, deputy wardens, and those on special service during the open season for moose, caribou and deer, I am glad to be able to report that the game laws have been fairly well observed, with some exceptions. So far I have endeavored to make the work of the Commission of an educational character, realizing the great difficulty of making the people of the Province conversant with the game laws. During the last eight years some thirty thousand copies of the game laws have been distributed, also a large number of posters, circulars, etc. Therefore, the usual plea of ignorance of the laws should no longer be received or tolerated as an excuse for avoiding the punishment of wrongdoing. Those who, knowingly and wilfully, violate the game laws for the sake of gain, such as storekeepers and fur dealers, commission firms and those in charge of lumber camps, should be fined to the fullest extent the law provides. I am fully convinced that the time is not far distant when it will be necessary to collect a small license fee in the Province for the right to kill any species of game, to ensure its better portection during both open and close seasons. This would have the effect of stopping country storekeepers employing boys to shoot partridge for export from the Province. It would also enable us to have more effective espoinage in the back country where the practice prevails. It would also provide funds for cost of same, and prevent many accidents that result from guns in the hands of careless boys. Such action would have the approval of sportsmen in general and the public at large. The continued abuse of the privileges accorded tourists visiting the Province, by many of them, would justify measures being taken prohibiting firearms of any description being in possession of tourists or guides in the northern parts of the Province during the close seasons for game. Guides should be compelled to procure licenses, and not left optional with them, as at present.

Game in Ontario.

Ducks have in many places been very numerous during the past open season, but on the whole shooters have not been as successful as in other seasons when ducks were less numerous. The fine weather prevailing during the greater part of the open season enabled the ducks to stay in the open waters during the day, returning to the marshes late at night, and leaving for the open waters at daybreak, where they were comparatively safe, owing to the difficulty of approaching them in open waters. From all quarters I have gratifying reports of the increasing number of canvas-backs visiting the waters of the Province.

Ruffed Grouse, or Partridge have been reported more scarce than usual in most localities, even in the northern portions of the Province, where usually most abundant. Unfavorable breeding season in most parts of the Province was no doubt the principal factor in the stortage, although other causes had considerable effect, viz., the destructive latitude allowed Indians. In the middle of January last I personally seied three large trunks containing more than four hundred partridges, mostly killed by Indians and sold or traded to a storekeeper at Spanish. It is easy to realize the effect of such slaughter on the ensuing breeding season in that vicinity.

Quail I regret having again to report so unfavorably regarding these grand little game birds, that have for many years afforded the genuine sportsman in the south and western parts of the Province more sport than all other species of feathered game. The unusually wet and cold weather prevailing during the breeding season of 1902 had a most disastrous effect on these birds in the low land in the Counties of Essex, Kent and Lambton, thousands of acres being flooded, destroying nests and young birds, in some localities nearly exterminating them. On the higher lands in southern counties they are to be found in sufficient numbers to afford fairly good sport. An effort will be made to re-stock the western grounds.

Snipe afforded better sport than for years past, doubtless owing to the high water confining them to smaller areas.

Woodcock are found in less numbers each succeeding season, this arising from two causes, viz.:—unrestricted shooting in their winter home in the Southern States and the destruction of their breeding grounds in the older settled portions of the Province.

Deer.

The Canadian Express Company carried during the open season of 1903 2,950 carcasses, an increase of 664 over season of 1902. The Dominion Express Company carried 416 during the open season of 1903, an increase of 176 over season of 1902, making a total of 3,366, as against 2,501 carried by both companies in 1902. Not one-half of the licensed hunters have their deer carried by express, and none of those hunting with settlers' permits. Allowing the low average of one deer to each hunter holding licenses or permits, it is safe to say that not less than 10,000 deer were killed during the fifteen days of the open season. Not less than three or four thousand deer are annually killed by Indians and settlers in unorganized districts, who are allowed to kill game during the whole year for their own use. I have no doubt that from all sources 15,000 deer were killed in the Province last year. These, at the low price of $10.00 each, would amount to $150,000. Forty moose, or portions of same, were carried by the Dominion Express Company during the open season. The heads of fifty-three were taken as baggage on trains, by hunters, who left the carcasses for their guides. This, making a total of ninety-three killed by licensed hunters. No doubt

twice this number were killed by Indians and settlers, of which it is impossible to obtain any record. It is safe to assume that the value of all species of game killed in the Province in 1903 is not less than $200,000, exclusive of fur-bearing animals.

Fur-bearing Animals.

I have reports to the effect that a marked increase in the number of beaver is noticed in sections of the Province not infested by Indians. No marked increase of otter is reported. There is a general desire of those engaged in the fur business that mink should be protected. They state that not more than 10 per cent. of the skins obtained in the Province are first-class, many of them being killed when half grown, or killed during the summer, when the fur is of little use. Fur dealers state that a first-class mink skin will realize as much as the average beaver.

Muskrats.

These animals appear to be holding their own with a tenacity only equalled by the German carp.

Insectivorous Birds.

Fifty-three permits to take insectivorous birds have been issued, a slight increase over last year.

Shooting Licenses.

Two hundred and fifty-nine non-resident licenses have been issued, and five thousand seven hundred and seven deer-hunting licenses, also one hundred and fifty-three moose licenses, and the usual number of settler's permits.

It is my pleasant duty to again tender my warmest thanks to the various railroad and express companies' officials, the press and sportsmen in general, for the uniform courtesy and assistance so kindly accorded me.

All of which is respectfully submitted, by

Your obedient servant.

E. TINSLEY,
Chief Game Warden.

Belleville, 31st December, 1903.

E. Tinsley, Esq., Chief Warden :

Sir,—Herewith I beg to submit my annual report of the condition of game in this eastern district, over which I have supervision.

Deer have been found quite numerous in many localities, and, considering the number killed each year, the supply in evidence is, I think, remarkable, and, notwithstanding that there was no falling off, but rather an increase in the number taken during the last open season, I am of the opinion that it is impossible this can go on from year to year without leading to disastrous results.

Moose have been frequently seen much further south than of late years, but whether this can be taken as an indication of their increasing numbers, or that they have been disturbed in their haunts further north, is hard to determine ; but, considering that the numbers taken in the hunting season is comparatively small, I incline to the belief that they are increasing satisfactorily.

Ducks have been fairly plentiful in most of the marshes during the fall, but the early shooting was not very good.

Partridge, I regret to say, were unusually scarce during the past season, for what reason I am unable to say.

Fur-bearing animals are much in the same condition as in former years, muskrats being fairly numerous, while beaver and otter are showing no apparent increase.

The laws, on the whole, have been very well observed by the sporting fraternity, but many of the settlers have very little conception of their duty as citizens, so far as the observation of the game laws is concerned.

In conclusion, I would respectfully recommend that the clause relating to settlers in unorganized townships or territories should be amended, so as to put them on the same footing as their neighbors who happen to live in a township which is organized.

I have the honor to be, sir,

Your obedient servant.

H. K. SMITH,
Warden.

Beaumaris, December, 1903.

E. Tinsley, Esq., Chief Game Warden, Toronto:

Sir,—Herewith I beg to submit my annual report in regard to game in those districts over which I have supervision.

Deer in most sections have been reported plentiful, and, judging from the number secured by hunters, it would appear that they are holding their own. We must not, however, overlook the fact that hunters are going further back, year by year, and opening up new hunting grounds, which in the natural course of events will in a few years become partially depleted. I would respectfully suggest that when certain counties or districts show a serious scarcity, such territories should be closed to hunters for a term of years. The does, fawns and small deer generally were the class procured, with few exceptions, on old hunting grounds this fall.

The deplorable number of fatalities and accidents arising from carelessness on the part of some hunters, and a preventative for such in the future requires most careful consideration. I believe a common, nominal, fair license would meet the exigencies of the case to a great extent. The issuance of these could be refused to boys under a certain age, as also to persons who for good reasons it would be wise to withhold them.

In the present act no time after the close of the season is allowed for the removal of deer, whereas formerly several days were allowed. I would strongly recommend that a change should be made in the old laws. Really speaking, all the railway, express and steamboat companies were breaking the law in handling venison this fall; as they were doing this in ignorance and in good faith, I did not take any notice of it, as it was absurd to think of all the hunters being compelled to take out affidavits. I am pleased to report that very few infractions occurred during the open season. The hunters who come up north are a fine class of men, and deserve all the courtesy we can give them, and they, I am sure, in their turn, will give us all the assistance in their power.

I would also respectfully suggest that abstracts from the Act should be printed on large sheets of cardboard, and a copy be sent to each railway station and postoffice in the Province, to be posted up. If we want the laws observed, it is our plain duty to use every means to instruct the public in such laws, and I think the above suggestion would be the most likely way to reach the masses.

I would also suggest that, should any alteration be made in the Act during the approaching session of the Legislature, that Section 32, relating to Indians and settlers in unorganized townships, etc., be entirely expunged. At any rate, on all territory south of the main line of the Canadian Pacific Railway.

Moose hunters have been fairly successful, several fine specimens having been taken.

LIST OF DEPUTY WARDENS BY COUNTIES.

Algoma.

Allard, John, Sault Ste. Marie.
Black, Andrew, Richard's Landing.
Burrows, George, Wharncliffe.
Clarke, R. H. Hymers.
Curran, Thomas J., Murilo.
Emmons, Maurice, Rat Portage.
Green, Thomas, Beaver Mills.
Harris, W. J., jr., Day Mills.
Howey, C. T., Fort Frances.
Kennelly, Daniel, Fort William West.
Kydd, George, Elmo.
Morton, E. A., Fort William.
McKewen, S. R., Tehkummah.
McKirdy, William, Nepigon.
Norquay, Thomas, Manitowaning.
Piper, Thomas, Slate River.
Reid, Alexander, Murillo.
Rowan, William, Thompson.
Rush, Robert, Echo Bay.
Sim, John, Barwick.
Tripp, E. C., Atikokan.
Whalen, James, Port Arthur.

Addington.

Clancey, C. E., Enterprise.

Bruce.

Amos, William, Dyer's Bay.
Armstrong, Joseph, Kinloss.
Henderson, James, Kincardine.
Hogg, George, Paisley.
Hogg, W. W., Paisley.
McDonald, Donald, Ripley.
McFarlane, D., Red Bay.
McIver, John, McIver.
Pratt, John, Kincardine.
Richards, C. A., Tara.

Brant.

Montgomery, C. A., Brantford.
Telfer, W., Paris.

Carleton.

Cleland, C. T., Osgoode Station.
Loveday, E. T., Ottawa.
Milford, Robert, Carp.
Taylor, A. H., Ottawa.

Dufferin.

Hubard, J. J., Orangeville.
Skelding, J. A., Shelburne.

Dundas.

Barclay, J. C. W., Inkerman.
Cameron, Lachlin, Iroquois.

Durham.

Hammond, Archibald, Orono.
Jackson, T. W., Orono.

Elgin.

Chute, E. A., Lakeview.
Davoe, William, Avon.
Fairbrother, W. T., St. Thomas.
Fowler, Jacob, Fingal.
Hopkins, John, St. Thomas.
Huffman, J. M., Aylmer.
Miller, Robert, Lawrence Station.

Essex.

Banks, Anthony, Harrow.
Cornette, C. F., Belle River.
Gignac, Louis, Gordon.
Hugill, William, Staples.
Ives, Arthur, Leamington.
King, George, Ruthven.
Lindsay, William, Comber
Price, J. E., Pike Creek.
White, J. H., Pelee Island.

Frontenac.

Brickwood, J. H., Kingston.
Dowker, William, Harrowsmith.
Gates, George, Westbrook.
Woodman, W. G., Allen.
Walker, Nelson, Cataraqui

Grey.

Campbell, Malcolm, Hanover.
Carson, James, Durham.
Leader, Alfred, Meaford.
McKnight, Thomas, Dornoch.
Munshaw, Peter, Eugenia
Myers, James, Orchard.
Seigmann, Louis, Neustadt
Simmons, M. H., Oxenden.
Tedford, James, Dundalk.
Weber, John, Vandeleur.

Glengarry.

Clark, James, Dominionville.
Dickson, D. A., Williamstown.
Dunn, Ambrose, South Lancaster.
Raymond, Israel, Bainsville.

Grenville.

Dunlop, Thomas, Groveton.

Hastings.

Foster, Alexander, Egan Creek
Hubbell, B. C., Marmora.
Reid, George, Madoc.
Unwin, Walker, Bannockburn.

Halton.

Crawford, Murray, Campbellville.
Panton, William, Milton.
Racey, C. S., Milton.

Haldimand.

Farrell, John, Cayuga.
Thompson, Wellington, Port Maitland.

LIST OF DEPUTY WARDENS BY COUNTIES.—Continued.

Haliburton.

Ashbaugh, George A., Dorset.

Huron.

Anderson, J. A., Seaforth.
Credh, James, Exeter.
Currie, John, Goderich.
Gill, John, Exeter.
Hewitt, John, Brussels.
McKay, Peter, Chiselhurst.
Naftal, C. J. S., Goderich
Rider, Joseph, Clinton.
Sands, John, Saltford.
Scott, Alexander, Westfield.

Kent.

Boles, T. Gordon D., Chatham.
Causgrave, Michael, Selton.
Dagneau, David, Chatham.
Dewar, R. G., Mitchell's Bay.
Eberts, G., Chatham.
Fisher, Byron, Wallaceburg.
Gardiner, Herbert, Morpeth.
Johnston, W. J., Chatham.
Kime, George, Big Point.
MacGregor, J. D., Chatham.
Smith, W. T., Tilbury.
Southgate, R. M., Wallaceburg.

Lambton.

Chambers, Thomas, Muir's Landing.
Hales, Hiram, Brigden.
Kennedy, Joseph, Port Lambton.
Meyers, S. H., Port Lambton.
Morris, T. P. Warwick.
Sarvis, A. E., Sarnia.
Taylor, J. P., Watford.
Witty, George H., Wyoming.

Lennox.

Huff, Hiram W., Napanee.

Lincoln.

Kemp, Wm. E., Beamsville.
Kennedy, C. A., Smithville.
McPherson, James, St. Ann's.
Randall, W. L., Grimsby.
Rayner, John, Niagara.

Lanark.

Farnall, William, Smith's Falls.
Finlayson, William, Harper.
Gardner, W., McDonald's Corners.
Mair, David, Lanark.
Manhard, H. S., Smith's Falls.
Patterson, J. E., Christy's Lake.

Leeds.

Bilton, George, Newboro.
Brown, Harry, Gananoque.
Gibson, John R., Mallorytown.
Griffin, William, Sand Bay.
Mathen, Henry, Brockville.
Murchie, Robert, Gananoque.
Smith, Justus B., Charleston.

Middlesex.

Fifield, William A., Putnam.
Forman, J. J., Dorchester Station.
Gibson, John W., Strathroy.
Jury, Robert E., London.
Paisley, Leonard, Ilderton.
Sadler, William, London.

Monck.

Moore, D. N., Perry Station.

Muskoka.

Armstrong, J. A., Morrison's Lake.
Berry, William, Walker's Point.
Brooks, Edgar J., Huntsville.
Butler, C. T., Point Kaye.
Draycott, F. W., Aspdin.
Grenke, Gustav, Rosseau.
Laforge, Peter, Muskoka Mills.
McFadyen, A., Huntsville.
Owens, David, Mortimer's Point.
Smith, J. D., Morrison Lake.
Stevens, George, Shannon Hall.
Strombery, Nils, Torrance.
Thornton, Richard, Huntsville.
Traves, John, Fraserburg.
Walker, James, Huntsville.
Weir, James, Utterson.

Norfolk.

Dowswell, John, Lynedoch.
Ewing, A. R., Waterford.
Kramer, Conrad, Delhi.
Lambert, P. N., Simcoe.

Northumberland.

Cock, Louis, Campbellford.
Diamond, Thomas, Cobourg.
Field, Cyrus W., Cobourg.
Merrian, H. N., Harwood.
Potts, George S., Campbellford.
Terrill, Esli, Wooler.

Nipissing.

Armstrong, W. G., New Liskeard.
Cahill, Thomas, jr., North Bay.
Commanda, Alex., Sturgeon Falls.
Fraser, W. A., Mattawa.
Harpe, William, Markstay.
Huntington, S. A., North Bay.
Sodoin, Louis, Sturgeon Falls.
Maloney, Theophile, Sudbury.
Shortt, David, New Liskeard.

Ontario.

Donovan, Timothy, Longford Mills.
Ferguson, Edward, Cannington.
Frankish, F. M., Uxbridge.
Goodman, C. H., Cedardale.
Miller, Arthur, Seagrave.
Pettet, George W., Port Perry.
Schell, Samuel, Port Perry.
Steele, John, Uptergrove.
Stoner, George, Pickering.
Sutcliff, James, Prince Albert.
Whan, Frank, Longford Mills.

LIST OF DEPUTY WARDENS BY COUNTIES.—Concluded.

Oxford.

Almas, A., Folden's Corners.
Hill, F. S., Woodstock.
Huntingford, Henry, Woodstock.
Thornton, J. B., Woodstock.
Watters, William, Drumbo.

Parry Sound.

Blea, Daniel, Uplands.
Cummins, M. J., Sand Lake.
LaBrash, J. P., Maple Island.
LaBrash, W. E., Maple Island.
McAmmond, William, Dunchurch.
McDonald, A., Sundridge.
McGhie, Robert, Whitestone.
McRory, John, Starratt.
Mitchell, Robert, Ceebe.
Russell, John F., Loring.
Welch, C. H., Sundridge.
Wraight, H. C., Powassan.

Peterboro'.

Moore, D. H., Keene.
Moore, F. J., Lakefield.
Nichols, Thomas, Hall's Bridge.

Prescott.

Barrett, John, Fournier.
Cross, A. J., Vankleek Hill.
Gordon, Samuel, Riceville.
Lefaivre, Hercules, Lefaivre.
LeRoy, Ralph, Vankleek Hill.

Prince Edward.

Lake, Stephen, Westlake.
Sprague, G. G., Demorestville.

Peel.

Rayburn, John, Caledon.

Perth.

Climie, William, Listowel.

Renfrew.

Brill, William, Sand Point.
Dunn, F. W., Barry's Bay.
Ferneyhough, Geo., Pembroke.
Grier, William, Eganville.
Johnston, S. M., Arnprior.
Kennedy, John, Pembroke.
Stewart, Alex., Sand Point.
Yuill, Walter, Calabogie.

Russell.

Casselman, Charles A., Casselman.
Longtin, Nap., The Brook.
Stewart, Peter, South Indian.

Simcoe.

Coombs, John, Lovering.
Crawford, Andrew, Penetang.
Doner, J. B., Creemore.
Hines, John, Barrie.
Hogg, George, Barrie.
Howard, Patrick, Collingwood.
Kean, Boulton R., Orillia.
King, John, jr., Penetang.
Loudon, H. J., Penetang.
McFarlane, D., Midland.
Powell, John, Sebright.
Pratt, William, Penetang.
Primrose, Alex., Apto.
Ronald, A., jr., Minesing.
Ross, Joseph, Cookstown.
Regan, John, Orillia.
Shields, A. W., Angus.
Somerville, D., Jack's Lake.
Wilson, Newton, New Lowell.

Victoria.

Bryan, Benjamin, Lindsay.
Campbell, John, Ragged Rapids.
Junkin, W. T., Fenelon Falls.
Robinson, Alexander, Kirkfield.

Welland.

Cook, B. A., Niagara Falls.
Effrick, R. M., Fenwick.
Griffin, Richard, Fort Erie.
Michener, C., Ridgeway.
Neff, Peter, Marshville.
Nixon, J. C., Welland.

Wentworth.

Dilts, William W., Attercliffe.
Graham, Harry, Hamilton.
Hazell, John, Hamilton Beach.
Morden, Eli L., Greensville.

Waterloo.

Colvin, A. J., Galt.
Fraser, Alex., New Hamburg.
Gress, Philip, Blair.
Hall, James, Hawksville.
Hartung, Karl, Berlin.
Lunn, John, Galt.
Menger, William, St. Jacob's.
McMaster, Thomas, Hespeler.
McVittie, John, Ayr.
Stark, John, Hespeler.
Whitehead, H. M., Berlin.

Wellington.

Barber, R. H., Guelph.
Gourlay, Thos., Damascus.
Hanson, John, Damascus.
Howes, Alonzo, Damascus.
Ireland, Dr. J. T., Harrison.
Landonie, Louis, Dracon.
Maitland, John D., Elora.
McCulloch, W. H., Fergus.
McCullough, John, Gordonville.
Palmer, E. T., Guelph.
Robertson, Colin, Hillsburg.
Stewart, Donald, Crieff.
Smith, George, Eden Mills.
Warden, Richard, Erin.

York.

Rout, J. H., Holland Landing.
Tidsberry, J. L., Coleman.

Quebec.

Crowley, E. B., Montreal.
Finnie, Dr. J. T., Coleman.

These men have been especially appointed to enforce the game laws on Lake St. Francis, which is partly in Ontario and partly in Quebec.

Report on Cases

County or District.	Name of prosecutor.	Date. 1902	Name of offender.	Address.	Offence charged.
Carleton.....	E. T. Loveday	Jan.	4 Timothy Boland.....	Ottawa	Offering hares for sale...
	do	do	4 Wm. Goodman.....	do	do
	do	do	16 G. F. Johnson.....	do	Offering partridge for sale.
	do	Aug.	17 M. Berry.....	do	Shooting on Sunday.....
	do	Sep.	16 Max Viau.....	do	Hunt ducks, close sea. ..
	do	do	16 Wm. Henry.....	do	do
	do	Dec.	23 G. F. Johnson.....	do	Offering ducks for sale...
Essex.....	James H. White	Sep.	1 Charles Brown.....	Cleveland, O.....	Shoot quail, other game.
	do	Nov.	5 Herbert Walters	Sandusky, O.....	Shoot, without license...
	F. C. Quallins	Feb.	22 Wm. Pierce.....	Marine City.....	do
	do	do	22 David Foster	do	do
	do	do	22 George Foster	do	do
	do	do	22 Andrew Francis.....	do	do
	do	Apl.	28 Henry Julian.....	Colchester, So...	Trapping geese.....
	do	June	6 James Chauvette.....	Anderton.....	Shoot Eng. pheasants. ..
	do	Sep.	23 John Paxton	Detroit	Shooting on Sunday.....
	do	Oct.	7 James Fryer.....	Stone Quarry....	do
	do	do	7 Bert Leslie	do	do
	do	do	7 John Leslie.....	do	do
Frontenac...	J. H. Brickwood	June	4	.....	.....
	do	Oct.	20	.....	.....
Hastings.....	H. K. Smith	Jan.	8 John Bartley	Moore's Falls....	Hunting deer, close season.
	do	do	8 Ben Bartley	do	do
	do	do	8 W. Bartley.....	do	do
	do	do	8 Thos. Spencer	do	do
	do	do	10 Job Palmer	Fenelon Falls ...	Hunt. without license...
	do	do	10 John Palmer.....	do ...	do
	do	Feb.	21 M. McGarvey.....	Marmora	Hunt. deer, close season.
	do	do	25 E. Hubble.....	Havelock.....	Selling partridge .....
	do	Mar.	6 Jno. Paplinski.....	Barry's Bay	Hunt. deer, close season.
	do	do	6 —— Paplinski.....	do	do
	do	do	25 D. McRae.....	Uphill	Kill. deer, close season.
	do	do	25 Hugh Wylie.....	do	do
	do	do	25 James Suter	do	Having beaver in pos. ..
	do	do	25 George Suter.....	do	Hunt. deer, close season.
	do	Apl.	9 Vair & McDougall.....	Owen Sound	.....
	do	do	16 E. Van Volkenburgh..	McLean	Buying & sell. partridge.
	do	do	16 S. do	do	Selling partridge.....
	do	do	16 J. do	do	do .....
	do	do	16 H. do	do	do .....
	do	do	16 Miles Sills	do	do .....
	do	do	16 Harvey Wood.....	do	do .....
	do	do	16 Wm. Arney.....	do	do .....
	do	do	16 David Kirk.....	do	do .....
	do	do	24 Lewis Whalen.....	Enterprise	Buying & sell. partridge.
	do	Sep.	5 Percy Parsons	Omemee.....	Shooting ducks.....
	do	do	18 Wm. Adrain	Bancroft.....	Buying venison .....
	do	Oct.	21 Geo. Griffin.....	Omemee	Shoot. rail, close season.
	do	do	21 Geo. English.....	do	" plover "
	do	Dec.	16 H. Dover	Egansville.....	Shipping partridge.....
	do	do	17 Shushack Bros.....	Wilno	do .....
	do	do	17 J. Delane.....	do	do .....
	Walker Unwin	Feb.	12 G. Sandford	Brighton	Buying deer skins out of season.
	do	do	12 Geo. Laird	Tudor	Catching beaver .....
	do	Dec.	19 B. Wheeler.....	Bogart	Having fresh deer in possession.
Huron	J. H. Armstrong	Jan.	20 R. Henderson	Kincardine.....	Shooting partridge .....
	Jas. Henderson.....	Nov.	5 A. Ingram	do	Killing deer without license.
Lanark	David Mair.....	Oct.	23 M. Jackson.....	Folger Station ..	Trap, rats out of season..

FOR YEAR 1902.

Arrested, or summoned.	Where tried.	Name of Magistrate.	Result of case.	Firearms, traps, etc., seized during year.
Appeared	Ottawa	O'Keefe	Fined $5 and cost	Seized 1 gun, 5 nets, 4 night lines, 20 boxes or bags of partridge, about 2,000 rat skins, 3 beaver and 1 otter skin.
do	do	do	do 5 do	
Summoned	do	do	do 5 do	
do	do	Smillie	do 5 do	
do	do	do	Dismissed.	
do	do	do	do	
do	do	O'Keefe	Fined $5 and costs.	
Got away before arrest could be made.				
Summoned	Sombra	Baring & Meyers	Fined $5 and costs.	
do	do	do	do 5 do	
do	do	do	do 5 do	
do	do	do	do 5 do	
do	Harrow	James Brown	do 9.50 do	
do	Amherstburg	Mr. McGee	do 5 do	
do	Windsor	Mr. Bartlett	do 8.50 do	
do	Amherstburg	Mr. McGee	do 2 do	
do	do	do	do 2 do	
do	do	do	do 2 do	
do	do	do	do 2 de	
				Seized 1 barrel of bass being shipped by Americans.
				Seized 25 rat traps in Big Bay.
do	Minden	Wm. Fielding	Dismissed.	
do	do	do	do	
do	do	do	do	
do	do	do	do	
do	Fenelon Falls	Jas. Dickson	Fined $20.	
do	do	do	do 20.	
do	Marmora	B. C. Hubbell	Dismissed.	
do	Havelock	Geo. Edmison	Fined $5.	
do	Barry's Bay	F. W. Dunn	Dismissed.	
do	do	do	do	
Settled		H. K. Smith	Fined $20.	
do		do	do 20.	
do		do	do 50.	
do		do	do 50.	
		do		Seized a quantity of beaver and otter.
Settled		do	Fined $15.	
do		do	do 5.	
do		do	do 5.	
do		do	do 5.	
do		do	do 5.	
do		do	do 5.	
do		do	do 5.	
do		do	do 5.	
do		do	do 15.	
do		do	do 10.	
do		do	do 20.	
do		do	do 5.	
do		do	do 5.	Confiscated 21 boxes of partridge, at sundry times and places: also 2 otter skins.
Summoned	Eganville	J. McCann	do 22.	
Appeared		H. K. Smith	do 20.	
do		do	do 20.	
Summoned	Millbridge	do	do 20.	
do	do	do	do 20	Sentence suspended.
Appeared	Madoc	L. O'Hara	do 20.	
Arrested	Lanark	Mr. McLean	do 10 and costs	Seized a few skins, and sent them to Department.
Summoned	Kincardine	Joseph Baker	do 10 do	
do	do	W. J. Henry	do 20 do	

Report of Cases

County or District.	Name of prosecutor.	Date 1902.	Name of offender.	Address.	Offence charged.
Muskoka	J. H. Willmott	Jan. 28	B. Merns	Trout Creek	Possession of venison....
	do	do 29	A. Lemay	Gravenhurst	Hunting out of season ..
	do	do 29	D. Lemay	do	do
	do	do 31	J. Jones	Parry Sound	do
	do	Feb. 3	J. Montgomery.....	Burpee	Selling venison.....
	do	do 3	A. Collison	do	do .....
	do	do 19	G. French	Trout Creek	Shooting partridge in close season.
	do	do 19	J. French.....	do	Hunting out of season ..
	do	Sep. 20	—— Piper	Baltimore	Shooting without license
	do	Oct. 25	J. C. Bogart	Ufford	Killing deer out of season.
	A. McFayden.....	Mar. 4	J. Yaffe.....	Toronto	Possession of beaver skins.
	Jas. Weir	Nov. 9 and 10.	.....	.....	.....
Nipissing	Theophile Maloney ...	Aug. 26	Isadore Bourassa	Sudbury	Possession of venison....
Oxford	A. Almas	Mar. 20	Lorne Sage.....	Ingersoll	Killing grey squirrels in close season.
	do	do 20	D. McCulick	Woodstock	Hunting in close season.
	do	do 20	Geo. Thornton	Sweaburgh	do
Parry Sound.	Jno. F. Russell	Nov. 9	Jas. Morris	Ottawa	Shooting partridge on Sunday.
	J. P. LaBrash.....	Jan. 20	A. McCallum.....	Dunchurch.....	Using venison in his camp.
	do	Feb. 15	John Bruce.....	Unknown	Having two deer skins in possession.
	do	July 20	Wm. Doolittle	Severn Bridge ..	Hunting ducks.....
	do	Aug. 8	Mr. Grouse.....	Unknown	do .....
	do	do 8	A. Ainsley	Whitestone	do .....
	do	do 8	E. Traeey	do	do .....
	W. E. LaBrash	do 12	J. Smith	Unknown	do .....
	do	Sep. 10	H. Lennox	Nipissing	Shooting partridge.....
Rainy River.	Maurice Emmons	July 14	C. Dahm	Rat Portage	Possession of otter skins.
	do	Oct. 21	Paul Simmons	Whitefish Bay ..	do rat skins...
Renfrew	F. W. Dunn	Nov. 4	Eli Ferguson	Barry's Bay	do otter skins.
	do	do 4	Antoine Aroone	do	do do
	J. C. Kennedy	.....	F. Jervis	Warren	Killing deer .....
Waterloo	Karl Hartung	Mar. 25	Joseph Zuber.....	Montrose	Shooting white owl ....
	do	do 29	George Reist	Conestoga	do .....

FOR YEAR 1902.—*Concluded.*

Arrested or summoned.	Where tried.	Name of Magistrate.	Result of case.	Firearms, traps, etc., seized during the year.
Summoned	Trout Creek	J. H. Willmott	Fined $20.	
do	Gravenhurst	Johns & Willmott	do 20.	
do	do	do	do 20.	
Settled		J. H. Willmott	do 20.	
Summoned	Parry Sound	Farrer & Willmott	Dismissed.	
do	do	do	do	
do	Trout Creek	J. H. Willmott	do	
do	do	do	do	
do	Rosseau	do	Fined $20.	
Settled			do 20.	
Summoned	Huntsville	Geo. Hutcheson	do 140 and costs.	
				Seized 18 rat, 4 beaver and 4 otter traps and sunk them.
Arrested	Sudbury	T. J. Ryan	Fined $10 and costs.	
Summoned	Ingersoll	Mr. Morrison	Settled for $5.61.	
do	do	do	Dismissed.	
do	do	do	do	
do	Loring	A. W. Sinclair	Settled out of court.	
do	Dunchurch	Wm. Robertson	Fined $20.	
Settled			do 40.	
Summoned	Maple Island		Settled $5.	
do	Ahmic Harbor		do 5.	
do	Whitestone	R. Robertson	Fined $ 5.	
do	do	do	do 25.	
do	Maple Island	J. P. LaBrash	do 10.	
do	do	do	do 10.	
do	Rat Portage	Jos. E. Rogers	do 20 and costs	Confiscated otter skins.
Arrested	Whitefish Bay	Wm. Young	do 5 do	" 350 skins.
Summoned	Barry's Bay	F. W. Dunn	do 20.	
do	do	do	do 20.	
do	Warren	Dr. H Irwin	do 10 and costs.	
do	Berlin	Mr. Weir	do 5 do	
do	do	Mr. Mackie	do 6 do	

Partridges have been fairly plentiful up north, but have not increased to such an extent as the favorable breeding season would have led us to hope for and expect, further south.

The present system regarding our deputy wardens is not satisfactory. We have good men, but most of them wil not prosecute, whilst their only remuneration is the fine inflicted, and which their neighbors look upon as blood money. I would suggest that men be appointed under a small salary, say even $50 or $75 per annum, each having charge of a certain number of townships. Also pay their expenses whilst engaged in prosecutions, but do not allow them any moiety of the fine. The public would then know that these men were paid for their work, and the men would know that if they were remiss in their duty they would be replaced by others, who would do their duty. On a recent trip out west I was much struck with the fine, gentlemanly fellows who act there as deputies. This they do for the love of sport, and woebetide any one they come across breaking the law

Beaver, I am pleased to report, are increasing rapidly in places. It is most difficult to have the law as regards these animals respected as it should be, but on the whole I think we should be satisfied with the increase. I am sure we have every reason to congratulate ourselves with the working of the law as a whole, and as the public are becoming awake to the importance of game protection, we are constantly receiving assistance from quarters from whence, a few years ago, we would least expect to get it.

I am, sir,

Your obedient servant,

JOHN H. WILLMOTT.

Dunnville, Dec. 31st, 1903.

E. Tinsley, Esq., Chief Game Warden, Toronto:

Sir,—I have the honor to submit to you my annual report for the year 1903, relating to the southeastern district of Ontario.

Partridge in this district averaged very favorable in both quality and number, being more matured and better developed birds on an average than for the past three years.

Wild geese have been found quite numerous, or more so, than in the past few years. Quite a number have been taken by hunters who understand their habits.

Ducks have been found quite plentiful this year, and of a better quality than for many years past. It is the unanimous opinion in this district that the open season for ducks should not be earlier on any account than the fifteenth of September, as the first fifteen days of September are always too warm, and many of the ducks are not yet fully matured. Many of the poaching fraternity take advantage of the early season, and shoot everything in sight, up to the 15th, under the guise of hunting duck. There can be no doubt that if the season for all game came in on the 15th it would result in greatly increasing the chances of all getting a fair show at the same time.

Muskrats in most sections of this district are on the decrease. They are hunted continuously by a certain class of trappers, who claim the privilege given in the law of protecting public works. They should be compelled to get a written permit from the officers in charge of the works before attempting to trap them.

Quail were also more numerous than usual in many localities, and of a more matured and plump appearance than has been usual in the past few years. The shortening of the season for shooting these birds is telling greatly in their favor.

Woodcock still continue rather scarce in the central portion of this district, while

in the eastern and western portions they seem to remain about the same, or in rather diminished numbers, if anything.

Plover and Snipe have not increased in the central part of this district during the last two years. They have been found in two sections in fair numbers, but on the whole I consider they are losing ground.

Black squirrels still continue to give the rising generation of sportsmen ample practice. The grey squirrels were not so plentiful this year as last.

Insectivorous birds seem to show no increase except the thrush (Turdos), or robin, which migrated here last spring in unusual numbers, and many of the females in this vicinity raised from two to three broods and left early for the south, about the 15th of September.

Cotton or wood hare have been in fair supply, and in some localities are slightly on the increase.

Canadian or white hare are very scarce. They appear to be going fast out of existence. I think they should be put in close season for ten years, with a view of trying to preserve them from becoming extinct. I think it would be a pity to allow them to become extinct.

The game laws in this district have never been more carefully observed than during the year just past, barring a very odd one of the most daring game thieves, who failed to resist the temptation when a good chance offered, also a case now and then occurred of parties more or less ignorant of the game laws getting into trouble, but whom I found on investigating had not rightly understood the laws. To all such I duly warned and instructed them in the law.

Thanking you, sir, for your very kind and valuable assistance and advice during the past year,

I have the honor to be, sir,

Your obedient servant,

J. A. GILL,

Game Warden.

Windsor, Dec. 31st, 1903.

Edwin Tinsley, Esq., Chief Game Warden :

Dear Sir,—I have the honor of submitting to you my annual report as warden of the Western District, comprising Essex, Kent, Elgin, Lambton and Middlesex, for the year ending in 1903.

Quail and partridge shooting has not been very good this season, owing to the dry, warm weather anr scarcity of birds. Quail have been scarce in Essex. Many hunters have reported the same to me. Of course, there are a few locations where birds were fairly plentiful. At St. Jochuam, Ruscom River, considerable birds were killed, also Colchester, North and South, reports good shooting.

Capt. Fertaw, of the Ship Canal, St. Clair Flats (Canadian side), stated that quail were increasing very much on Squirrel Island, which is located between the Chimmatagan and the Sny Carty. The Indians there protect them from poachers.

Another important locality for quail is in Romney Township, Kent County, between the eastern part of said township and the western part of Mersea Township, along the shores of Lake Erie. The formers are making every effort to protect the birds.

Partridge was also more scarce this fall than last. East Tilbury, Kent County, reported the best shooting of the season between Merlin and Sycamore Siding, L. E. & D. R. R.

Snipe and rail were very plentiful this year along the shores of Fighting Island and Canard Flats, in the early part of the season, which afforded much sport.

Duck Shooting.

Duck shooting remains to be the great sport of this district. They have been very plentiful along the whole frontier between Bois Blanc Island and Kettle's Point, Lake Huron. More canvas-backs have been killed this year between the islands of the Detroit River and Antredon March than in any previous year that I know of. Ducks of all kinds have been plenty at St. Clair Flats.

Good shooting has been had, with the exception of the warm spell, which interfered for some of the "clubs" coming through Horseshoe Bay by boat, and the Bassett, ducks were too numerous to mention. There will be plenty left for another season.

Fur-bearing Animals.

Muskrats on the Detroit and Canard Rivers are very plentiful this year, and the trappers look for a big catch on Grassy and Fighting Islands and Turkey Creek. The yearly catch is between 1,500 and 1,600 muskrats. Several complaints have been made to me by the Amherstburg and Windsor Street Car Company that the rats were destroying the embankment of their railroad. I gave permission to destroy them, in accordance with the game laws, which provides for such causes. Muskrat will also be plentiful on Big Creek, between Knapps and Big Island, Lake Erie. All complaints from that part regarding unlawful trapping and spearing shall receive as strict attention in the future as it has in the past.

American Poachers.

Poachers on the frontier between Amherstburg and Sarnia Bay show up every year, as usual, and many run chances of being caught rather than pay the license fee, as the law requires, and many make big threats in defying the law. So far I have only been shot at once in my eleven years' experience, but no harm came to me, as it was quail shot, at a considerable distance. It happened at Sandwich Springs, 1898. Three poachers were arrested this fall at Fighting Island Bay. These parties came from Wyandotte and Delray, Mich., and were fined by Police Magistrate Bartlett, Windsor. Many more arrests would be made yearly along the frontiers of Detroit River and St. Clair Flats if I had a speedier boat. Without it makes it very difficult, as arresting a man on the water is altogether different than catching poachers on land, as both streams are international waters.

Customs Department.

The customs department along the frontier have given me every attention to assist me in my duties. A great many Americans have went hunting in Ontario, crossing the line at Windsor via C.P.R. Some hold the opinion that game licenses should be issued to foreigners as they cross the frontiers, as it is alleged that some of these parties when they get up north buy residence licenses instead of non-residence, which no doubt would be a great saving to them. I just mention this for your consideration, as some of the custom house officers hold these views.

Yours respectfully,

Your obedient servant,

F. C. QUALLINS.

Copy of an Order in Council approved by His Honor the Lieutenant-Governor, the 17th day of June, A.D., 1903 :

Upon the recommendation of the Honorable the Commissioner of Public Works, the Committee of Council advise that Mr. William Henry Casement of Lakefield be re-appointed a member of the Ontario Game Commission, his term of office having expired on April 1st. 1903.

The Committee of Council further advise that Mr. James E. Thompson of Arnprior be appointed a member of the Ontario Game Commission, in the room and stead of Mr. William Henry Biggar, whose term of office expired on 1st April, 1903, and who is no longer a resident of the Province, said appointments to take effect from the said 1st day of April, 1903

Certified,

J. LONSDALE CAPREOL,
Assistant Clerk Executive Council.

Copy of an Order in Council approved by His Honor the Lieutenant-Governor on the 2nd September, 1903 :

Upon the recommendation of the Honorable the Commissioner of Public Works, the Committee of Council advise that, pursuant to the provisions of Section 18 of the Ontario Game Protection Act, the hunting, taking or killing of deer in the County of Dufferin be prohibited for a period of five years from the first day of November next.

The Committee further advise that in accordance with the provisions of sub-section 3 of Section 7 of the said Act, the hunting, taking or killing of grouse or partridge in the said County of Dufferin be prohibited for a term of three years, from the 15th day of September next. Certified,

J. LONSDALE CAPREOL,
Assistant Clerk Executive Council.

Copy of an Order in Council approved by His Honor the Lieutenant-Governor, the 16th day of October, A.D. 1903:

Upon the recommendation of the Honorable the Commissioner of Public Works, the Committee of Council advise that, in accordance with the request of the Council of the Township of Luther, and with the consent of the County Council, and pursuant to the provisions of Section 18 of the Ontario Game Protection Act, the hunting, taking or killing of deer in the County of Wellington be prohibited for a period of five years from the first day of November, 1903. Certified,

J. LONSDALE CAPREOL,
Assistant Clerk Executive Council.

LIST OF ISSUERS OF DEER HUNTING LICENSES--1903.

J. H. Willmott, Beaumaris.
William Kirk, Bracebridge.
James Sharp, Burk's Falls.
J. A. Johnston, Parry Sound.
W. H. Lawson, Park Head.
William Climie, Listowel.
J. B. McWilliams, Peterboro'.
J. H. Brickwood, Kingston.
John Nott, Port Perry.
William Fielding, Minden.
George Eady, Renfrew.
William Matheson, Havelock.
S. M. Johnston, Arnprior.
F. J. Moore, Lakefield.
A. H. Taylor, Ottawa.
Thomas Beasley, Hamilton.
A. G. Brown, Stouffville.
Thomas Fraser, Norwood.
B. O'Hara, Madoc.
William Prust, Haliburton.
J. D. Cockburn, Sturgeon Falls.
W. A. Quibell, Sault Ste. Marie.
J. J. Bampfield, Niagara Falls.
H. T. Burton, Powassan.
J. T. Robinson, Bobcaygeon.
B. J. Gilligan, Mattawa.
Col. T. H. Lloyd, Newmarket.
T. G. Eastland, Apsley.
W. A. Field, Lanark.
Austin Moran, Dacre.
Peter Munshaw, Eugenia.
Fred. Long, Kolapore.
F. C. Quallins, Windsor.
E. Musgrove, Kirkfield.
W. J. Leatherdale, Coldwater.
J. D. Rowe, Trenton.
John H. Ramer, Markham.
Stephen Lake, Westlake.
B. C. Hubbell, Marmora.
H. W. Huff, Napanee.
Marshall Maybee, Madoc.
James Cleak, Bancroft.
Charles Hart, Barrie.
F. J. Stewart, Stayner.
Benj. Bryan, Lindsay.
A. D. Carley, King.
A. R. Ewing, Waterford.
J. Y. Hammond, St. Thomas.
George Packham, Alliston.
James McLeod, Almonte.
Esli Terrill, Wooler.
Henry Mathen, Brockville.
J. F. Gillespie, Picton.
D. Woodward, Cannington.
D. McMillan, Beaverton.
J. E. Gould, Uxbridge.
Chas. Leach, Millbrook.
E. J. Breen, Uxbridge.
H. B. Harrison, Owen Sound.
Henry Taylor, Perth.
O. Bascom, Kemptville.
John Wright, Flesherton.
N. D. McCallum, Carleton Place.
A. E. Sarvis, Sarnia.
James Martin, Hillsdale.
David Williams, Gooderham.
John Hill, Bradford.
D. McFarlane, Red Bay.
A. H. Brandon, Kinmount.
James Scott, Gooderham.
H. K. Smith, Belleville.
R. Kimber Johns, Gravenhrust.
Peter Stewart, South Indian.
J. B. Sanche, Mayerville.
Hugh Rankin, Prescott.
Thomas Upton, Sprucedale.
A. McDonald, Sundridge.
Andrew Hunter, Moorewood.
W. R. Craig, Russell.
B. B. Miller, Wiarton.
F. Iveson, Metcalf.
Richard Cole, South River.
F. N. Macfie, Dunchurch.
Thomas Kennedy, Parry Sound.
J. P. LaBrash, Maple Island.
G. G. Thrasher, Stirling.
William Dafoe, Avon.
James Packham, Brampton.
George Bilton, Newboro'.
James Tedford, Dundalk.
Andrew Morton, Brantford.
W. H. Blair, Arthur.
P. K. Newton, Tweed.
C. E. Clancy, Enterprise.
S. G. Best, Magnetawan.
W. H. Johnston, Havelock.
P. D. McKercher, L'Orignal.
D. McFarlane, Midland.
T. W. Jackson, Orono.
J. B. Shrigley, Dorset.
W. J. Taylor, Woodstock.
R. McConkey, Kearney.
J. S. Rogers, Toronto.
Geo. Morrison, Callander.
William Franklin, Franklin's Corners.
Chris. Nixon, Elmvale.
Karl Harttung, Berlin.
Wm. Robertson, Wingham.
J. R. Gibson, Mallorytown.
J. C. Gilchrist, Woodville.
Nap Longtin, The Brook.
William Martyn, Mitchell.
Harvey Rogers, Cambray.
C. C. Gilbert, Seeley's Bay.
Arthur Monteith, Rosseau.
W. C. VanLoan, Hagersville.
W. G. Otto, Vars.
Walker Unwin, Bannockburn.
E. A. Garnham, Straffordville.
B. S. O'Loughlin, Yarker.
John Hines, Barrie.
John Stark, Hespeler.
A. Montgomery, Sebright.
C. W. Davidson, Mount Albert.
H. P. Dwight, Toronto.
M. W. Price, Mountain Grove.

LIST OF ISSUERS OF DEER HUNTING LICENSES—1903.—Concluded.

Harry Johnston, Coe Hill Mines.
J. A. Orr, Sudbury.
William Panton, Milton.
F. J. Barber, Georgetown.
J. H. Lewis, Smith's Falls.
Patrick Howard, Collingwood.
J. A. Ellis, Fenelon Falls.
John Regan, Orillia.
S. A. Huntington, North Bay.
R. A. Arksey, Port Carling.
James Walmsley, Wiarton.
C. S. Gillespie, Campbellford.
E. R. Emery, Eden Grove.
A. McFayden, Huntsville.
H. W. McDougall, Carp.
A. Ronald, jr., Minesing.
Charles Pringle, Baldwin.
E. M. York, Verona.
John Allard, Sault Ste. Marie.
J. E. Walsh, Ottawa.
Wm. Whetstone, Lakeside.
William Irving, Webbwood.
James Myers, Orchard.
R. E. Hamilton, Grand Valley.
Lincoln Hutton, Bolton.
Hiram Hales, Brigden.
S. L. Doolittle, Berlin.
W. D. Black, Parham.
W. F. Gibson, Grimsby.
W. H. Stafford, Deseronto.
H. E. Kelly, Marmora.
George Hogg, Barrie.
F. Motheral, Plattsville.
William Waters, Drumbo.
W. J. Gallagher, Frankford.
Geo. W. Hare, Tillsonburg.
Thos. Nichols, Hall's Bridge.
Isaac Allen, Mississippi Station.
F. W. Sieveright, Burk's Falls.
R. H. Menzies, Burk's Falls.
W. G. Armstrong, New Liskeard.
John A. Gill, Dunnville.
S. R. McKewen, Tehkummah.
William Higgins, Thessalon.
John Malone, Brechin.
John Hewitt, Brussels.
D. Somerville, Jack's Lake.
E. T. Palmer, Guelph.
A. J. Cross, Vankleek Hill.
I. A. Broadway, Norland.
Arthur Quantz, Langstaff.
G. T. McKague, Bexley.
Thomas White, Calabogie.
A. Almas, Folden's Corners.
John P. Evans, London.
Warrington Scott, Wooler.
E. G. Mitchell, Pembroke.
John A. Newton, Dead Creek.
J. A. Skelding, Shelburne.
J. A. Russell, Loring.
Andrew Crawford, Penetang.
C. T. Smith, Maxville.
C. O. Bean, St. Catharines.
J. A. Anderson, Seaforth.
William McKay, Madawaska.
Robert Jordan, Byng Inlet.
H. J. Snider, Harrowsmith.
Junius Bradley, Aylmer.
J. A. Sykes, Oshawa.
J. Chanonhouse, jr., Eganville.
William Brill, Sand Point.
Alex. Fraser, New Hamburg.
R. M. Effrick, Fenwick.
Nathaniel Shunk, Maple.
James Murdoch, Spragge.
O. E. Bagshaw, Vallentyne.
J. N. Stong, Woodbridge.
John Lunn, Galt.
A. W. Shields, Angus.
W. H. C. Roblin, Ameliasburg.
Wm. Smeaton, Inglewood.
J. D. Maitland, Elora.
O. V. Goulette, Gananoque.
W. A. Brodie, Unionville.
John George, Eganville.
H. Bingham, Crysler.
A. W. Wood, Plevna.
C. T. Cleland, Osgoode Station.
C. J. Hollands, Fort Frances.
P. McHugh, Eganville.
E. C. Bennett, Ahmic Harbor.
W. L. Tyson, Thornbury.
J. E. N. Miller, Combermere.
L. H. Timmins, Mattwa.
Harry Ketchum, Ottawa.
F. T. Pattison, Bridgeburg.
W. J. Harris, jr., Day Mills.
R. H. Clarke, O'Connor.
Neil McDougall, Port Arthur.
W. A. White, Whitehall.
D. H. Moore, Keene.
J. E. Wilcox, Hastings.
T. LaChapelle, Embrun.
Thos. H. Smith, Restoule.
T. A. Gourley, M.D., Killaloe Station.
J. A. Armstrong, Kinloss.
William Leavitt, Temiskaming.
H. E. Snell, Toronto Junction.
Lawrence Loughrin, Temagami.
J. H. Prosser, Sutton West.
J. D. McIntosh, Pout au Baril.
S. C. McElwain, French River.
J. J. Hadley, Hadlington.
Thomas Sullivan, Bruce Mines.
G. Earnest Holmes, Clinton.
J. A. Devenney, Whitney.
Alfred Leader, Meaford.
James Lochore, Blind River.
E. F. Cowan, Novar.
Newton Wilson, New Lowell.
A. C. Pratt, Toronto.
Dr. J. T. Ireland, Harriston.
L. J. Bennett, Strathtay.
A. W. Cohoe, South Woodslee.
Michael Corkery, Trout Creek.
James Henderson, Warren.

SHOOTING LICENSES ISSUED TO NON-RESIDENT SPORTSMEN—1903.

P McKenzie, Montreal.
C. Meredith, Montreal.
F. L. Wanklyn.
John Nichols, Montreal.
A. J. Dawes, Montreal.
D. Robertson, Montreal.
P. Hayden, Montreal.
John F. Fuller, Alexandria Bay, N.Y.
A. E. Brush, Detroit, Mich.
T. C. Drake, Chicago, Ill.
R. S. Barnhart, Grand Rapids, Mich.
J. B. Miler, Pasedena, Cal.
H. A. Laughran, Pittsburg, Pa.
C. W. Laughran, Pittsburg, Pa.
W. C. McCloy, New York, N.Y.
T. S. Gillespie, Montreal.
B. A. Alexander, France.
B. F. Dutton, Boston, Mass.
J. LeClair, Buffalo, N.Y.
John Kuehn, Buffalo, N.Y.
Charles Becker, Buffalo, N.Y.
John Wende, Buffalo, N.Y.
F. S. Hodges, Boston, Mass.
Louis Cabot, Boston, Mass.
A. L. Drummond, Montreal.
H. E. Scott, Cleveland, Ohio.
G. H. Richards, Boston, Mass.
R. C. Gillett, Montreal.
E. L. Welch, Philadelphia, Pa.
E. C. Knight, Philadelphia, Pa.
Alex. Cochrane, Boston, Mass.
H. Hathaway Dedham, Mass.
C. J. Paine, jr., Boston, Mass.
S. P. M. Tasker, Philadelphia, Pa.
W. M. Barnum, New York.
Henry M. Sage, Albany, N.Y.
C. W. Mainwaring, Albany, N.Y.
A. Hemenway, Boston, Mass.
H. B. Bigelow, Boston, Mass.
G. M. Laughlin, Pittsburg, Pa.
George Magill, Buffalo, N.Y.
Stephen Lett, Allentown, Pa.
T. H. Groman, So. Bethlehem, Pa.
W. B. Dickerman, New York.
C. A. Griscom, Philadelphia, Pa.
R. E. Griscom, Philadelphia, Pa.
R. W. Trotter, Buffalo, N.Y.
C. Wheatley, Buffalo, N.Y.
C. W. Cochrane, Pittsburg, Pa.
J. H. Kinser, Pittsburg, Pa.
J. Hilburger, Buffalo, N.Y.
J. M. Gohn, Buffalo, N.Y.
R. J. Magill, Buffalo, N.Y.
Henry Shearer, Buffalo, N.Y.
R. E. Follett, Munising, Mich.
U. S. Baird, Allegheny, Pa.
J. Witherspoon, Allegheny, Pa.
J. M. Davidson, Allegheny, Pa.
J. D. Harrington, Erie, Pa.
S. M. Kennedy, Conneaut, Ohio.
Adan Wilbert, Conneaut, Ohio.
F. B. Joiner, Conneaut, Ohio.
W. E. Joiner, Conneaut, Ohio.
E. A. Montgomery, Toledo, Ohio.
C. Flouring, Toledo, Ohio.
Frank Wolfe, Pemberville, Ohio.
J. Brandeberry, Pemberville, Ohio.
H. McAfee, Pittsburg, Pa.
W. P. Clement, New York.
A. George, Tonawanda, N.Y.
L. Wattengail, Tonawanda, N.Y.
J. S. Thompson, Tonawanda, N.Y.
F. M. Beck, Buffalo, N.Y.
C. F. Benzing, Buffalo, N.Y.
W. J. Callahan, Niagara Falls, N.Y.
W. Hamilton, Niagara Falls, N.Y.
J. Evans, Niagara Falls, N.Y.
Dr. Brownell, Rochester, N.Y.
T. J. Rogers, Conneaut, Ohio.
A. H. Salter, Rochester, N.Y.
C. H. Meitzler, Rochester, N.Y.
Robert Hardy, Niagara Falls, N.Y.
W. H. Smith, Buffalo, N.Y.
J. H. Henderson, Conneaut, Ohio.
Henry Neumer, Conneaut, Ohio.
F. D. Christman, Conneaut. Ohio.
T. Clark, Conneaut, Ohio. 1
C. H. Whittleton, New York.
Frank Over, Pittsburg, Pa.
R. Stuart, Chicago, Ill.
T. T. Caldwell, Oil City, Pa.
B. J. Green, Lockport, N.Y.
E. H. Fence, Lockport, N.Y.
J. C. Gill, Streetsville, Ohio.
James Cassidy, Pittsburg, Pa.
W. H. Nichols, New York.
R. Wilbur, Bethlehem, Pa.
E. Wilbur, Bethelhem, Pa.
E. O'Leary, Bethlehem, Pa.
S. A. Devendorf, New York.
D. Isaacs, Niagara Falls, N.Y.
Eric Krueger, Niagara Falls, N.Y.
Henry Kreser, Buffalo, N.Y.
William Robb, Buffalo, N.Y.
General W. Healy, New York.
A. F. Bowker, Wilson, N.Y.
J. Monnen, Buffalo, N. Y.
F. E. Saums, Wilson, N.Y.
F. Caswell, Niagara Falls, N.Y.
Andrew Mills, New York.
J. T. Sullivan, Dunkirk, N.Y.
B. Sutherland, Wilson, N.Y.
J. T. Monnen, Buffalo, N.Y.
Homer Collins, Espyville, Pa.
C. S. Collins, Espyville, Pa.
W. H. Bishop, Espyville, Pa.
W. H. Wilt, Espyville, Pa.
F. K. Wick, Youngstown, Ohio.
J. McAfee, Pittsburg, Pa.
S. McAfee, Pittsburg, Pa.
F. W. Gill, Allegheny, Pa.
J. W. Collins, Edgewood, Pa.
W. T. Slocum, Wilson, N.Y.
A. C. Bigelow, Wilson, N.Y.
Frank Tower, Wilson, N.Y.
John Baird, Irving, N.Y.
R. V. Covert, Lockport, N.Y.
J. J. Marshall, Lockport, N.Y.
Dr. Eades, Conneaut, Ohio.
W. Chapman, Conneaut, Ohio.

SHOOTING LICENSES ISSUED TO NON-RESIDENT SPORTSMEN—1903.—Concluded.

S. M. Smith, Conneaut, Ohio.
D. R. Tinker, Conneaut, Ohio.
Thomas Hunter, Pittsburg, Pa.
A. Lonahaugh, Pittsburg Pa.
W. Kletzley, Pittsburg, Pa.
C. Rupert, Pittsburg, Pa.
Frank Cooper, Pittsburg, Pa.
W. T. Sears, Harrisburgh, Pa.
W. S. Ray, Harrisburgh, Pa.
H. E. Hershey, Harrisburgh, Pa.
F. F. VanBuren, New York.
M. M. VanBuren, New York.
J. D. Archibold, New York.
B. Dominick, New York.
J. G. Todd, New York.
C. H. Woods, Worcester, Mass.
D. A. Hamilton, Worcester, Mass.
J. N. Jarvis, New York.
C. W. Woods, Worcester, Mass.
Hon. Reginald Ward, London, Eng.
H. Brassey, London, Eng.
J. F. Nichols, Detroit, Mich.
J. Bishop, Wyandotte, Mich.
J. Bishop, jr., Wyandotte, Mich.
Arthur Clarke, Wyandotte, Mich.
G. Baumler, Wyandotte, Mich.
Frank Marx, Wyandotte, Mich.
M. M. Stanton, Detroit, Mich.
Frank W. Eddy, Detroit, Mich.
Fred. Tower, Detroit, Mich.
John Munroe, Detroit, Mich.
F. H. Walker, Detroit, Mich.
H. J. Meredith, Detroit, Mich.
F. H. Newberry, Detroit, Mich.
Strathern Hendrie, Detroit, Mich.
F. G. Ryan, Detroit, Mich.
A. M. Rantoul, Boston, Mass.
W. D. Tristam, Detroit, Mich.
A. Humphrey, St. Clair Flats, Mich.
C. G. Cadieux, Grosse Point, Mich.
Archie Michie, Grosse Point, Mich.
A. R. Baillie, Detroit, Mich.
T. F. Ramey, Detroit, Mich.
C. M. Englis, Chippewa Bay, N.Y.
H. W. Williams, Chippewa Bay, N.Y.
J. Y. Davies, Chippewa Bay, N.Y.
F. G. Bourne, Chippewa Bay, N.Y.
John Doe, Chippewa Bay, N.Y.
Beldon Roach, N.Y.
S. G. Roach, New York.
S. B. Palmer, Rochester, N.Y.
G. W. Davis, New York.
E. Hoover, Michigan.
T. W. Atwood, Michigan.
E. Bosley, Michigan.
B. T. Streeter, Michigan.
O. W. Linkhart, Port William, Ohio.
H. W. Olin, New York.
H. Thwaite, New York.
E. Mackey, Jamestown, N.Y.
S. H. P. Pell, New York.
T. J. Northrup, Buffalo, N.Y.
Gustave Patin, Hanai, Indo, China.
G. H. Schachtale, Bellevue, Ohio.
C. Millar, Toledo, Ohio.
J. G. Hafsteeter, Toledo, Ohio.
J. S. Stokes, Philadelphia, Pa.
Charles Evans, Philadelphia, Pa.
F. W. Preiss, Buffalo, N.Y.
G. W. Floss, Buffalo, N.Y.
Louis Frees, Buffalo, N.Y.
F. R. Metcalf, Buffalo, N.Y.
R. J. Gould, Buffalo, N.Y.
Charles Fitch, New York.
C. Abercrombie, New York.
W. H. Merrill, Peppner, Mass.
L. E. Belknap, Mayville, Mich.
G. C. Watson, Caro, Mich.
A. Durphy, North Branch, Mich.
J. B. Fenton, Flint, Mich.
D. A. Maloney, Soo, Mich.
Henry Vannest, Peck, Mich.
J. Waddell, Grand Rapids, Mich.
E. C. Fox, Grand Rapids, Mich.
J. T. Byrne, Grand Rapids, Mich.
B. F. Hall, Belding, Mich.
R. Sayler, Lewisburg, Ohio.
F. J. Wilson, Lewisburg, Ohio.
C. Rhodes, Brookville, Ohio.
J. S. Hopner, Lewisburg, Ohio.
George Stuart, Cedar Rapids, Iowa.
J. H. Andrews, Ackron, Ohio.
O. G. Castle, New York.
H. S. Castle, North Branch, Mich.
C. D. Freeman, Medina, Ohio.
W. D. Bradshaw, Jamestown, N.Y.
C. E. Bailey, Jamestown, N.Y.
S. G. Weston, North Branch, Mich.
J. S. Warren, Medina, Ohio.
F. W. Korff, Lockport, N.Y.
J. F. Ling, Lockport, N.Y.
A. E. Young, Buffalo, N.Y.
G. E. Angell, Detroit, Mich.
C. E. Johnston, New York.
J. R. Marsh, New York.
T. H. Conklin, Wilmington, Ohio.
E. Lukins, Wilmington, Ohio.
W. O. Maddux, Xenia, Ohio.
A. E. Hawker, Dayton, Ohio.
H. W. Collett, New Burlington, Ohio.
A. E. Clevenger, Wilmington, Ohio.
O. Swigart, Xenia, Ohio.
C. J. Heinold, Buffalo, N.Y.
W. O. Cutler, Buffalo, N.Y.
O. J. Carter, Toledo, Ohio.
D. D. Johnson, Toledo, Ohio.
E. S. Peck, Cleveland, Ohio.
Fred Scott, Niagara Falls, N.Y.
R. Hamilton, Niagara Falls, N.Y.
Howard Weirs, Allentown, Pa.
F. B. Scheirer, Allentown, Pa.
A. W. Hendricks, Allentown, Pa.
G. A. Farmer, Montreal.
F. B. Elliott, Pittsburg, Pa.
W. J. Wilson, Pittsburg, Pa.
J. G. McDonald, Pittsburg, Pa.
Tindell Pitts, Pittsburg, Pa.

The "Gilphie."

R. R. SALLOWS, ARTIST.

Goderich Fishing Fleet, 1884.

E. Hart, Artist.

Fishing Station—Southampton, Ont.

Nipigon Trout (*Salvelinus Fontinalis*).

FIFTH ANNUAL REPORT

OF THE

DEPARTMENT OF FISHERIES

OF THE

PROVINCE OF ONTARIO.

1903.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO.

TORONTO:
PRINTED AND PUBLISHED BY L. K. CAMERON.
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1904.

WARWICK BRO'S & RUTTER, Printers.
TORONTO.

To His Honour the Honourable William Mortimer Clark,

Lieutenant-Governor of the Province of Ontario, Etc., Etc.

May it please Your Honour,--

I have the honour to submit herewith, for the information of Your Honour and the Legislative Assembly, the Fifth Annual Report of the Department of Fisheries of this Province.

I have the honour to be,

Your Honour's most obedient servant,

F. R. LATCHFORD.

Toronto, 19th February, 1904. Commissioner of Fisheries.

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REPORT

OF THE

DEPUTY COMMISSIONER OF FISHERIES

FOR THE YEAR

1903.

To the Honorable F. R. Latchford, Commissioner of Fisheries for Ontario :

The undersigned has the honor to submit herewith the Fifth Annual Report of the Department of Fisheries for the year ending 31st December, 1903.

INTRODUCTORY.

The returns indicate a small diminution in the catch as compared with that of 1902. The demand for fish has, however, been active, and the prices exceptionally high ; so that the estimated value of the catch is considerably greater than that of last year. In Lakes Superior, Huron and the Georgian Bay the falling off is again attributed to the rough weather, which prevailed throughout the greater part of the season, and not to a scarcity of fish, for when the weather permitted the catches are said to have been unusually large. In Lake Erie the gradual shrinkage from year to year may, it is believed, be directly chargeable to the greed of American fishermen, and to the practically unlimited privileges which they have been allowed. They have operated with every kind of implement, and, virtually, without restraint. This is assumed to be the principal reason why the stringent restrictions which have been so long maintained by Ontario have not been more effective in increasing the yield on this side of the lake; and unless a disposition is manifested on the part of the American authorities to take immediate action in the direction of effective preservative regulations and safeguards, no tangible or defensible argument can be adduced against the claim of our fishermen to equally participate in the extermination. The matter is further touched upon in the paragraph, "The Great Lake Fisheries."

A diminished catch in a number of places has no doubt resulted from the fact that many of the fishermen, finding other employment more remunerative, abandoned their fishing operations for a portion of the year, or did not pursue them with the assiduity they perhaps would otherwise have done

The cause of a shortage in a certain portion of a lake in one season as compared with another sometimes arises from the fact that, owing to rough weather, the fishermen may not be able to lift their nets for several days. The fish decompose and pollute the water, and the effect is noticeable for the remainder of the season. Our own fishermen have suffered considerably in that respect, but not to the same extent it is believed that the American fishermen have done. We gather from a report of one of the States bordering on Lake Erie that fifty miles of net are claimed to have been

lost this year by fishermen from one port alone. The number of fish caught by these derelict nets, not to speak of the effect of the decomposed fish upon the fisheries, must be considerable.

The improvident custom of setting gill nets late in the fall and during the winter months is believed to have a disastrous effect upon the fisheries, as well as to result in great pecuniary loss to the fishermen from the sweeping away of their nets during that usually stormy period.

In Lake Ontario it is reported that the species of fish known as Ciscoe, which was caught years ago in such large numbers, "is coming back again," and that out of 6,000 fish taken in two or three lifts by Bronte fishermen, 90 per cent. were ciscoes. This gladdened the hearts of the old fishermen, who prophesy that they will be as numerous as in former years. It is hoped their expectations may be realized. There is no finer flavored fish in the market than the ciscoe.

Angling is reported to have been good everywhere, and particularly so in the Nepigon. A large number of tourists visited the river, and some fine trout were hooked. More Canadians wet their lines than usual. It has been recommended that fly fishing only should hereafter be permitted in the Nepigon, and that live bait, artificial minnows, and mechanical contrivances of all kinds should be tabooed Certainly the former is more sportsmanlike, and is sufficiently deadly in skilful hands to insure a full creel. This is evidenced by the fact that one visitor during a short stay killed twelve trout (salvelinus fortunalis) weighing from five to seven pounds each, and of an aggregate weight of 60 pounds. Sand River, which empties into Lake Nepigon at its north west corner, is said to be fairly alive with brook trout up to six pounds in weight, and no doubt will, as soon as it can be conveniently reached, become second only to the Nepigon in popularity.

Several sea salmon are reported to have been taken in the St. Lawrence. Some doubt, however, has been expressed as to whether these fish were of the species known as salmo salar ; but, from the descriptions given, there is every reason to believe that they were. If any one capturing a fish, which he thinks is a true salmon, would carefully pack it and forward it to the Department, the Department would feel under an obligation to him, and would gladly pay the express charges thereon. On page 97 will be found a plate which will enable the species to be identified.

Reports have from time to time reached the Department that a fish said to be the Grayling is to be found in Northern Ontario; but these reports have never been verified. Richardson, in "Fauna Boreali-Americana," states that it abounds in the rocky streams that flow through the primitive country lying north of the 62nd parallel of latitude, but he does not record that he found it further south. It is said to still inhabit the waters of both the southern and northern peninsulas of Michigan, and that it was formerly very abundant in the Au Sable and Jordan Rivers of Northern Michigan, though now practically exterminated by the lumbering operations carried on in that region. It would certainly be a delightful bit of information to find that this fish really was to be found in Ontario waters ; and with a view to assisting in determining the fact, a cut of the Grayling has been inserted at p. 98, in order that comparison may be made. Its dorsal fin is so unlike that of any other fish that anyone will be able to decide the matter without difficulty, as soon as he sees the plate. Its coloring is described by Jordan and Evermann to be as follows : "His pectorals are olive-brown, with a bluish tint at the end; the ventrals are striped with alternate streaks of brown and pink; the anal is plain brown; the caudal is very forked and plain; while the crowning glory is the immense dorsal, which is dotted with large, brilliant-red or bluish-purple spots, surrounded with a splendid emerald green, which fades after death—the changeable shade of green seen in the peacock's tail." There is said to be no species sought for by anglers which surpasses the Grayling in beauty or gameness.

A Speckled Trout weighing three pounds was taken in a net in Lake Erie opposite the County of Kent. The fisherman was thoughtful enough to present it to the Department, and it has been mounted for preservation as a rara avis in those waters.

The reports from tourists who have visited Lake Nipissing are that the bass, pickerel, and maskinonge fishing has surpassed all previous years.

The speckled and grey trout fishing in the lakes along the Temiskaming and Northern Ontario Railway is said to have been excellent. Brook trout have been taken in Pine, Goose, Anderson, Rabbit, Rib, Temagami and numerous smaller lakes, which tipped the scales at from two to five pounds each. It is thought that Rabbit, Temagami and Rib Lakes are the finest trout lakes in Northern Ontario, east of the Nepigon. The grey trout readily accept bait, and specimens weighing from 20 to 27 pounds have been taken with rod and line. Our American friends are already spying out locations for permanent camping grounds. The adoption of strict measures with respect to angling in these waters, and regulating camping parties—measures similar to those in force on the Nepigon—are recommended.

The Department has often been asked the question, "Where shall I go for some good fishing?" and in order to supply this information more fully than it has been possible to do heretofore, a circular letter was addressed to each overseer containing the following questions :

"Name the lakes, rivers and streams in your division in which good angling is to be had, mentioning such waters only as it is known will afford good fishing.;

"State what fish are contained therein, whether bass, maskinonge or speckled trout :

"State how waters may be reached; and

"What accommodation there is for visitors."

A synopsis of the replies has been prepared, and will be found elsewhere under the heading "Angling Waters."

Statistics.

The statistics which are to be found in another portion of the Report have been prepared with the utmost care, and are believed to furnish an accurate account of the season's operations. The usual difficulty has been experienced in impressing the fishermen with the necessity of making their returns promptly, and this has made it absolutely impossible to complete the Report as early as otherwise might have been done.

Licenses to fish with 4,005,420 yards of gill net, 488 pound nets, 523 hoop nets, 100 seines, 32 dip nets, and three machines, besides several thousand hooks, were issued.

The occupation has given employment to 2,443 men, and 24 gasoline boats, 109 tugs, and 1,370 other boats have been in use.

An estimated capital of $846,368 is invested in the industry.

The aggregate catch amounts to 21,194,205 pounds, as compared with 23,714,570 in 1902, a decrease of 2,520,365.

The estimated value of the catch is $1,535,144.

A list of overseers, with the territory under the jurisdiction of each, will be found at page 62.

Statements have been prepared showing:

1. The revenue derived from each division (p. 68) ;

2. The number in detail of fishermen, tonnage and value of tugs, vessels and boats, quantity and value of fishing material, and the kinds and quantity of fish caught (pp. 70 to 87) ;

3. The gross yield of the different kinds of fish in each division in 1902 and 1903, and the increase or decrease (p. 90) ;

4. The total quantity of each kind of fish taken, as compared with the quantity taken in 1902, and the increase or decrease (p. 88) ;

5. The value of the different kinds of fish taken (p. 91) :

6. The number of tugs, men, boats, etc., engaged in the industry, the quantity of nets licensed, and the value thereof (p. 91) :

7. The value of the Ontario fisheries from 1870 to 1903, inclusive (p. 92); and

8. The quantity of fry distributed by the Federal Government in the Province since Confederation. (p. 92).

Preservation vs. Revenue.

There seems to be an impression—an erroneous impression it may be said—in the minds of many people, that the Department of Fisheries is administered wholly from a revenue standpoint, and surprise is sometimes expressed that a larger revenue is not realized. It may, therefore, not be out of place to mention that, while it is of course important and absolutely necessary that a revenue should be derived, and that the Department may be self-sustaining, the matter of paramount importance, and the one which must be kept constantly and prominently before it, is the conservation and perpetuation of this great heritage—no easy matter, it may be supposed, in view of the large number of applications which are received, and the vigor with which they are pressed. If there were no such contingency to be borne in mind, the receipts might possibly, for a few years at least, be very considerably increased. An application may, however, be under consideration for weeks before the Department is satisfied that the license may properly go, or the reverse. If it is considered that as many licenses have already been issued as the fishery will properly stand, all others are refused. If it is thought that the issue of a license will prejudice the livelihood of another fisherman, it is declined. In the case of the inland lakes in the older parts of the Province, it is first ascertained what kinds of fish the lake contains for which a license is asked. If few game fish, a license for a limited number of hoop nets is sometimes approved. It has been satisfactorily demonstrated that where these nets are fished strictly in accordance with the conditions imposed, which are very emphatic as to the taking of certain kinds of fish, and the waters are depleted of the coarser and less valuable kinds, there has been a noticeable increase in the quantity, and improvment in the size and quality of the game fish. But even in the case of such waters, where the locality is densely settled, the policy is that no net fishing whatever shall be allowed, for in such localities there are usually to be found many people with whom even the coarser kinds of fish which may be taken with hook and line form an important item of food. If the application is for the privilege of fishing in a lake in New Ontario, the question of the suitability of the locality for settlement is considered, and its future needs are anticipated, for in such districts settlers must for a long time depend for a goodly portion of their food upon the fish which the waters yield; and the Department has refused many applications for such waters, though the adoption of an adverse policy would materially add to its receipts. How delightfully pleasant and agreeable the work of issuing licenses would become, could a license be issued to every one who applies therefor. But, while the question of revenue is, as has been pointed out, one of secondary consideration, it is at the same time believed that it might be considerably increased, that the fees heretofore charged in some cases have been too low, and might properly be raised without being made burdensome; and that angling fees might, and should, be charged non-residents in some sections, where free fishing has heretofore been allowed—where visitors, who contribute nothing for entertainment or for maintenance, enjoy the fruit of our labor and the benefits of our provident administration.

Observance of the Law.

There have been seized and destroyed, or otherwise disposed of, while in illegal use, or where there was prima facie evidence of the same having been held for illegal use, 130 trap nets, 106 gill nets, 6 seines, 2 hoop nets, 300 hooks, and 41 spears. There have been 105 prosecutions reported. Of these, 42 were for fishing without a license, 21 for catching and dealing in fish out of season, 14 for using the spear illegally, 13 for killing or having game fish contrary to law, 3 for dynamiting fish, and a number for miscellaneous offences. Nearly one thousand dollars have been collected in fines In a few

cases the offender has been merced in a nominal amount only, whereas by Provincial Act the minimum fine which must be imposed is $10. When the law provided that a smaller fine could be imposed, it was found that it had no deterrent effect whatever upon offenders; indeed, it was thought only to encourage their contempt for both the law and its officers.

A number of offences have been committed, serious enough, but which it is believed occurred more from carelessness or unbusinesslike methods than from deliberate intent to evade the law. In some cases the fishermen had not placed their name as well as that of the consignee upon their boxes when making their shipments, and others had not marked their nets in a manner enabling them to be identified. The fishermen are realizing that these provisions are manifestly in their interest, and are a protection to the man who wants to do business honestly. Occasionally a man has been found fishing in territory other than that described by his license, but this is an infrequent occurrence, and is believed to be largely accidental.

It is pleasing to believe that since the organization of the Department there has been a remarkable change in public sentiment. Five years ago there was but little interest shown in fishery matters; there was amazing apathy with regard to the most flagrant offences; indeed, even some of our justices connived at wrong-doing, and facilitated the escape of offenders. But most of this has changed. A greater regard for our laws and regulations is now not only manifested, but is being promoted almost everywhere; and communities are being educated to respect these laws and require their observance. In this connection Anglers' Associations could do yeoman service, and we should like to see one or more in every county.

The undersigned was during the summer invited to meet the Board of Trade of a certain town to offer suggestions for the better protection of the fisheries in the locality. It was alleged that the licensed fishermen were taking bass, that there could be no possible doubt of it, because the town constable had himself seen bass in a fisherman's boat. It was pointed out that no better evidence could be had, and that the county constable should be directed to at once lay an information against the parties, as was his duty under the Act. But, although the matter was revived by letter, no action appears to have been taken. It was probably one of those cases of mistaken identity, or where much talk was indulged in because it was cheap; but when it came to swearing out an information, that was a different matter. Such reports are constantly being investigated, but it frequently transpires that they are founded merely upon hearsay.

Protective Service.

The steamer "Gilphie" and the sailboats "Maud" and Gladys" on the Georgian Bay have done good patrol service. The reports of the officers in charge will be found in their proper places. These boats went into winter quarters on the 10th December, navigation closing a few days earlier than in 1902. The overseers in charge of the "Maud" and "Gladys" have applied to have gasoline engines installed in these boats, on the ground that they cannot properly protect their districts without this auxiliary power. They say many of the fishing craft are so equipped, and that their sailboats are handicapped in a race with such boats, owing to the vagaries of the wind. This change would increase somewhat the cost of maintenance, but the larger area which it would be possible to cover, and the greater efficiency attained, would, it is believed, more than compensate for the outlay.

The launch "Eva Bell" has patrolled the Rideau waters, and that much illegal work was prevented by her presence is illustrated by the fact that as soon as she had been taken off no less than 22 convictions were made. The crew consists of two men, and the boat's movements are chiefly directed by the district overseer.

During the close season, a patrol boat was placed on Lake Simcoe for a fortnight and it is believed with good results.

Overseers, Their Salaries and Duties.

One hundred and twenty-seven overseers are employed, of whom 118 are paid salaries varying from $25 to $600 per annum, according to the importance of the district under their supervision, and the duties expected of them. These sums amount in the aggregate to over $14,000, and in addition $4,000 were paid them for travelling and other expenses. But the work performed cannot always be gauged by the amount of salary paid, for some overseers who receive but $25 in salary, in their desire to see the fisheries well cared for and fostered, have rendered much service for which no pecuniary consideration was expected. Besides the regular staff of overseers, a number of guardians were appointed during the spring and fall close seasons for waters where poaching has been known to occur, and for this service $1,097 has been paid. So that on account of protection alone, including the maintenance of the cruiser and patrol boats, the Department has expended during the year the very considerable sum of $25,500.

Each overseer is required to render to the Department a monthly statement of the duties performed by him, the localities visited, the distances travelled, and the amounts expended, and to make affidavit that the account is true in these particulars, He is also required to send in monthly a statement of the moneys received and from whom. This enables the Department to keep a check upon his movements and transactions.

The plan of protection adopted is that which was formerly approved for many years by the Department at Ottawa, except that in those portions of the Province where the work is chiefly of supervision five district overseers have also been appointed. It was believed that having overseers scattered liberally over the country would be the best system for this Province; but even with the generous provision which has been made in this respect—the number has been increased from 94 in 1899 to 127 in 1903—the territory to be supervised is so large, and the number and variety of its waters so great, that the volume of work which these men have to perform, to give anything like efficient protection, must be apparent to anyone who will give the matter a moment's thought or consideration ; and it will not be surprising if violations do and will occur. Smuggling, stealing, housebreaking, and many other offences against the law of the land have occurred, and will occur until the millenium, no matter how vigilant, zealous, and active officers may be who are specially appointed to prevent these crimes.

The duties of our overseers are not restricted to the work of protection only, but they have other and very important duties to perform. At the close of the season they are required to make a return to the Department of the fish caught in their respective divisions, and the prices received for the same. To give an estimate of the value of the fishing material used. To report upon the year's operations; and, specially (1) if there has been an increase or a decrease in the catch of the different kinds of fish, as compared with that of the previous year, and the cause thereof—in case of a decrease whether it arises from a scarcity of fish, from local causes, or from a less vigorous prosecution of the fishery, and in case of an increase to state also the causes to which it should be ascribed ; (2) the percentage of fish exported or sold in Canada, as well as an estimate of the quantity used for home consumption ; (3) whether any abuses have existed, and what measures are recommended for their abatement ; (4) whether the close seasons have been strictly observed, and what steps have been taken towards enforcing them ; (5) whether any illegalities came to their knowledge ; (6) whether the law with respect to the pollution of waters has been observed ; and, generally, to offer for the consideration of the Department any suggestions which a knowledge of the wants of their divisions enables them to make for the improvement and better protection of the fisheries therein.

Close Seasons.

To aid in the preservation of the fisheries, and having regard to the limited capacity of the hatcheries in the Province, it has been deemed proper heretofore to maintain restrictions on the taking of fish at certain seasons of the year. The seasons, however, it is said, do not apply effectively to the Province as a whole, and the consequence is that a systematic effort is every year made by fishermen or their friends to have one or other curtailed; and the pressure has usually been so persistent as to be irresistible. But where privileges have been granted in one section and withheld in another, as has been done in recent years, much dissatisfaction arises, and the enforcement of the law in the latter is made practically impossible. If, therefore, a close season is to be of service, it would appear necessary, to remove existing inequalities, that the Province should be divided into zones, and as nearly as may be an appropriate season fixed for each. The season should then not be tampered with, but should be strictly enforced. Proving possession under such conditions would be not more difficult than under a system which approves of the maintenance of a close time in one locality and its abolition in another. The Province can only suggest, however, as the subject is wholly within the jurisdiction of the Dominion; but it is at the same time so closely allied to Provincial administration, and so vitally affects Provincial property, that it is considered quite within the function of the Department to make these observations.

The Sale of Game Fish.

Notwithstanding that the sale of speckled trout, bass and maskinonge is prohibited by statute, and notwithstanding that heavy penalties have in the past been imposed for the offence, the Department has learned that game fish are occasionally taken, marketed, and disposesd of surreptitiously; and this state of affairs may be expected to continue so long as persons unscrupulous enough to purchase the fish may be found. The Department has required its officers to be specially vigilant in the examination of shipments and the premises of dealers, and to do this at frequent intervals, though no specific instructions for an examination should be received. It can hardly be credited that these fish are being taken by the licensed fishermen, as they fully understand that the consequence would be the cancellation of the licenses, and, therefore, the loss of their means of livelihood.

Dynamiting.

Reports from the St. Lawrence, in the vicinity of Brockville and Cornwall, have again been received that fish were being dynamited, and special efforts were put forth to apprehend the parties, but without success. The offenders, who were believed to cross the river from the American side, pursued their nefarious work at night, which made it difficult for the regular officers to bring them to account, and another year a substantial reward should be offered for information that would lead to the conviction of the parties. A term in gaol, without the option of a fine, would be the proper reward for such conduct.

Stocking.

The most important work, or that, perhaps, of which most has been heard, in which the Department has been engaged during the year, is the continuation of that so vigorously entered upon in 1901, viz., the re-stocking of our inland waters with black bass, its game and edible qualities fully justifying the high esteem in which it is held by the Department as the best all-round fish for introduction into our waters. Deposits have been made in no less than 25 different lakes and rivers. Attention has been again chiefly directed to waters where large numbers of persons congregate during the summer, over 4,000 fish having been placed in Lakes Muskoka, Joseph and Rosseau alone. These lakes are reported to be teeming with small bass; and the same may, in fact, be said of all waters which have been stocked, namely, that they are literally

swarming with the young of these fish. The work performed the first year is already manifesting itself in improved angling. A carload of bass was successfully sent as far as Rat Portage, and deposited in a small lake in the vicinity of the Lake of the Woods, illustrating that parent fish may be transported almost any distance under proper conditions, and with conscientious attention. Some doubt was felt as to whether several hundred parent fish confined in such small space as is afforded in an ordinary car could be sent so far without very great loss, and much credit is due Messrs. Ellis and Wood, the Departmental officials in charge, for the success of the experiment is undoubtedly due to their faithful attention to duty. The water had to be frequently changed, kept thoroughly oxygenated, and at the proper temperature, which required unrelaxed attention day and night. A carload of speckled trout from the Nepigon was deposited near Rat Portage.

With the increase of summer resorts, and the number of persons who indulge in an annual outing, the drain upon the fish in our lakes and rivers has become relatively greater; and if the supply is to be increased, the utmost vigilance must be exercised to prevent waste. Indeed, it may be considered necessary for a time to limit the catch much below what it has heretofore been legal to take. All true sportsmen will be anxious to co-operate in every possible way to accomplish so desirable a result; and, in addition to a limited catch, no better proposition, it is believed, could be made for this purpose than that contained in a former report, viz., to return to the water for a year or two all undersized, and all uninjured fish not actually required for consumption after having enjoyed the sport of playing them. The bass is a very hardy fish, and this could safely be done in perhaps 99 cases out of 100 without fear of mortal effects. Some anglers, who do not sympathize with this view, will maintain that a fish once hooked will invariably die, but that this contention is erroneous is sustained by the fact that the bass first deposited by the Province some years ago were taken in this way, and with but little mortality as the result. Last year one of the State Commissions purchased 500 bass, all of which were caught with hook and line, and not a single fish, it is said, died. The source of danger is in the handling when the fish is taken from the hook, or when severely wounded in the throat or gills. If this proposition should not appeal to the good judgment of anglers, it may then be deemed necessary to set apart waters which are being stocked, and to prohibit angling therein until the increase will justify their being again opened, as has been done in the case of some of our rivers. We actually found that parties were taking the fish before the day on which they had been planted had closed. To attempt to re-stock under such circumstances would not only be folly, but a waste of time and money.

All these precautions would probably not now be required, had former Administrations appreciated the importance of preserving our game fish. It will be remembered that it is only since the administration was assumed by the Province that the sale of speckled trout, black bass, and maskinonge has been prohibited, and that fishermen have not been allowed to net for bass or maskinonge. Prior to that time these fish were dealt in commercially, and immense quantities taken every year and exported from the Province. In 1898, under Dominion administration, the returns show that 970,375 pounds of bass, and 774,320 pounds of maskinonge were taken. This enormous drain, which had been going on for years, had nearly exhausted the inland waters.

The Tourist Trade.

"For beauty and for charm, for unblemished loveliness," the lakes and rivers of Ontario stand supreme; and this is testified to by the fact that in almost every part of this glorious Province the summer tourist is in the holiday season to be found. "He represents at once a diversification and an industry. . . . He is so familiar a figure that it is difficult for us to appreciate either his novelty or his importance. . . . Should he suddenly revert from his nomadic habit to the settled stay-at-home ways of his fathers, we should not only miss him grievously in our landscape, but scores of

trades would be paralyzed by his disappearance from his accustomed haunts ; . . . . many a town would lose its principal sources of support, railroad schedules would be revolutionized, and steamboat sailings sadly deranged. . . . He has become an integral and vital part of our social and commercial organization." To what extent the Ontario Government, in restoring the fishing in our inland lakes, has contributed to the prosperity of the people of the Province, it is, and will be, impossible to estimate ; but some of the fruits are that hundreds of persons are annually induced to visit us who would not otherwise come, and thousands of dollars are finding their way into the pockets of our people which would be spent elsewhere.

Gasoline Boats.

Gasoline engines as an auxiliary power are being used by a number of our fishermen, the licenses issued for boats so equipped being 24, as against 14 in 1902. It is conceded that they are a great saving of time and money ; but the advantages of such power are only appreciated by those who have been fortunate in installing a reliable engine. This is not the only requisite, however, for not the least essential attribute to the successful working of an engine is the use of gasoline of a specific gravity not below 76 degrees ; and though the quality may be perfectly satisfactory when the barrel is first tapped, it will deteriorate with time, and the engine is sometimes blamed when the fault is properly in the gasoline. It frequently happens, also, that too little or too much gasoline or air is used, when the mixture does not vaporize properly, and trouble is sure to arise ; but when these difficulties are overcome, and experience in operation is gained, the convenience and advantages of gasoline power, either alone or as an auxiliary to sails, are many. Engines, powerful and good running, are now made in Canada, and it is no longer necessary to go to the other side for at least as reliable an engine as can be obtained there ; and the price is lower, for the duty is saved.

North American Fish and Game Protective Association.

As was anticipated in our last report, the meeting of the Association, which was held this year at Ottawa on the 21st and 22nd of January, was perhaps the most successful of any in its history, as to numbers in attendance, papers presented, discussions engaged in, and results accomplished ; and we do not fail to remember that not the least enjoyable part of the programme provided for the entertainment of the delegates was the magnificent banquet tendered by the sportsmen of the Ottawa Valley. The banqueting hall was artistically decorated with magnificent and rare trophies of the rod and gun. The Hon. Mr. Latchford, President of the Association, presided at the banquet, and the guest of honor was His Excellency the Governor General of Canada.

Land-Locked Salmon.

The Department has not yet abandoned hope of obtaining a supply of this highly-prized and popular fish for introduction into some of our inland lakes; and having failed to procure any from our sister Province, Quebec, application has been made to one of the border States, where they are successfully propagated, an exchange being proposed for ova from our famous Nepigon trout. It would be an important and welcome addition to our game fishes, and we are convinced that the experiment would be entirely successful. A lake with a gravelly outlet and inlet should be selected, as the land-locked salmon both descends and ascends these during the spawning period.

Carp.

Owing to the fact that carp increases rapidly, and, it is believed, at the expense of other and better classes of fish, there has been much prejudice against it ; but carp fishing has, nevertheless, become quite an industry during the last year or two, and may yet be one of the most profitable. Large quantities have been sold at six cents

a pound, which is said to leave a handsome profit. Those who are fishing for them on an extensive scale have erected ponds, into which during the warm months, when the market is flat, the fish are placed. They are fed until the fall season, and then marketed. Friends of the carp say that its edible qualities are very much underrated, and that when properly prepared and cooked it is a most palatable fish. If salted for a few hours previous to being made ready for eating, it will lose much of its muddy or swampy flavor, and be generally improved. It has been favorably recommended by an American writer as food for bass, being a prolific breeder, and subsisting on vegetation. If it would cease to grow after attaining a length of four or five inches, perhaps too much could not be argued in its favor for this purpose, but it would be in our opinion nothing short of a calamity if these fish should be introduced into our beautiful inland lakes. So far, it is believed, they have not yet found their way there, and our bass waters have escaped their depredations. The damage to the wild rice fields is now believed to result, not wholly from the disturbance of the roots of the plant by the carp, but these fish, being granivorous as well as herbivorous in their habits, pick up the ripened grain in the water, and the seed is thus lost. We are informed that the stomach of one recently caught at the St. Clair Flats was opened, and at least a double handful of rice taken therefrom ; and as an example of their destructiveness upon the spawn of other fish, it may be mentioned that a gallon of spawn, which had been devoured, was taken from an eighteen-pounder—a weight which the carp frequently attains.

Sturgeon.

The quantity of sturgeon taken throughout the Province shows a considerable falling off, though in certain quarters (notably Lake Nipissing) there has been an increase, the amount taken in 1903 exceeding that taken in 1902 by 62,650 pounds. The demand for sturgeon has, however, increased, and prices have been higher than in former years, the average wholesale price for the meat in the New York market having been fifteen cents per pound. The wholsale price for the roe in the same market has varied from 80 cents to $1 per pound, according to quality, a higher price being paid for that of the best color and flavor. Our finest caviare comes from the Lake of the Woods, the roe of the sturgeon of these waters being as a rule larger than of the sturgeon of the Great Lakes. The process of making caviare is one which has to be carried on with much care, for unless the proper quantity of salt is used the whole batch may be ruined, a little too much being as disastrous as too little. The kind of salt, too, is not the least important requisite, native salt not being suitable. The German brand is that most generally, if not universally, preferred. Thirteen pounds to one hundred pounds of eggs are the proper proportions; and the keeping qualities of the caviare are said to be improved by the addition of one pound of preservative. The total output of sturgeon this year (in Ontario) was 494,250 pounds. The largest specimen reported to have been caught was that taken by a Lake Erie fisherman, which turned the scale at 190 pounds. It yielded 40 pounds of roe, and for the meat and roe he received the sum of $50—as he said, the price of a first-class cow. But the value of the sturgeon does not end with the meat and the roe, for there is another and very valuable product manufactured from the bladders, viz., isinglass. It is used by brewers for clarifying purposes. The custom here is to save and dry the bladders, for which 40 cents per pound are realized. They are then exported to the United States, manufactured, and re-sold in this country at from $1 to $1.25 per pound. Until the Province assumed the administration, almost any implement of capture was permitted to be used in the taking of sturgeon, but a recent Dominion Order-in-Council prohibits their being taken with bare hooks and grappling irons, and, indeed, in any other manner than with pound and gill nets, the latter to have meshes of not less than 12 inches extension measure. Another important provision in the same Order is, that none shall be taken under four feet in length The benefits to be derived from these regula-

tions cannot be other than salutary. The passing of this fish is an exemplification of what may be expected as the result of unrestricted capture and destruction. It was so plentiful a few years ago as to be practically of no market value, but it has decreased so rapidly as to be the highest priced of our commercial fishes.

Fishways.

Though the general question of the requirement of fishways in dams is, as the law at present stands, one for the consideration of the Dominion Department, instructions have been given by the Commissioner for the erection of fishways in two dams, the property of the Province, in which it was made clear that their erection was desirable and proper. The principal fact which has to be borne in mind, or ascertained, when these recommendations are made, is that a roadway will not be provided for the entrance of worthless fish into waters in which under existing conditions only choice varieties are to be found, if but in small numbers. Should such a result be likely to follow, it would be better to transplant a few pairs of parent fish from adjacent or near waters, which, with proper protection, would soon populate those above the dam.

Pollution From Sawdust and Other Causes.

Referring to the injurious effects of sawdust on fish life, as to which conflicting opinions are expressed by fish culturists, a writer in a recent number of "Forest and Stream" points out that one of the first difficulties which fish culturists had to overcome in the artificial propagation of trout was the deleterious effects of the fungus growth that always appeared in the troughs and boxes in which the eggs were hatched, especially where these were manufactured out of new lumber; and he makes the emphatic statement that this fungus is so deadly to the eggs that if a million were to be put into green lumber troughs, not a single egg would mature. He very pertinently remarks that if the exposed surface of a hatching-trough could be the primary means of such deadly consequences, what a vaster power for injury there must be in sawdust, in which form the exposed surfaces of the wood are multiplied almost indefinitely. If his contentions are well founded, the effect of throwing tons of sawdust every year upon the spawning beds, or where it will float and lodge upon the spawning beds below, must be most disastrous. In his opinion it is this fungus alone that destroys the young fish that are exposed to it, and not that mortality occurs by the sawdust becoming fixed in the gills during inhalation, as is generally supposed. Whatever ground there may be for a difference of opinion on the subject, it is well known that fish will abandon waters, the beds of which have become covered with this refuse. The practice of lumbermen of permitting sawdust to enter the water as the most convenient and inexpensive means of getting rid of it, is in some places still persisted in, notwithstanding the very severe penalties provided for the offence. Repeated warnings have been given, and preparations in a number of cases for making other disposition of the refuse, are, we are glad to find, under way.

A number of complaints have been received during the year as to the pollution of waters by the refuse from sugar factories. The attention of the parties has been called to the subject, and a system of settling basins and filters, which it is hoped will sufficiently eliminate the deleterious matter to render it perfectly harmless, has been recommended. The subject is receiving the close attention of the Department.

Leases of Lakes.

Operations under the leases to the Canada Fish Company and the Manitou Fish Company, preparatory to beginning fishing, have been begun. Owing to the inaccessibility of the lakes to railway communication, there has been great difficulty in getting in material and machinery, and much time has been consumed in this work alone; but it is understood that considerable sums of money have already been expended by both companies in the construction of roads, docks, boats and scows, and in the erection of ice houses, store houses, fish houses, sleeping camps, dwelling houses, stables, stores, offices, etc., etc.

The Manitou Company has also erected, and has ready for occupation, a hatchery capable of hatching 50,000,000 eggs.

Close Season for Frogs.

The Department is urged to establish a close season for frogs, concurrent with the close season for bass and maskinonge, not only as a means for the better protection of the former and to prevent their extermination, which is said to be fast approaching, but for the reason also that under the pretence of spearing frogs many bass and maskinonge are taken when on the spawning beds—a fact difficult to establish where the fish are not actually found in possession. As what is suggested would impose no apparent hardship upon anyone, and as many fish would no doubt be saved, the establishment of a season covering the period from 1st April to 1st July is recommended.

Great Lake Fisheries.

The maintenance and preservation of our Great Lake or commercial fisheries are perhaps of primary importance to that of conserving those commonly known as the inland or sentimental fisheries. This must be done, mainly, by propagation and protection; propagation by preventing the taking of immature fish, that the greatest possible opportunity may be afforded for natural reproduction, and by largely increasing the output of our hatcheries; and protection, by exercising a vigorous policy of supervision, the requirement of a strict compliance with the laws and regulations, and the prompt prosecution and punishment of persons for violating the same. This burden cannot be assumed exclusively by the Department, for though the lakes and rivers, and the fish therein, have been declared by our Court of Final Resort to be the property of the Province, the same Court has, strange as it may appear, delegated to the Federal Government jurisdiction in many important respects over Provincial property. This jurisdiction may or may not be exercised in what the Province may consider its best interests; but, be that as it may, that is the situation as defined by the Judicial Committee of the Privy Council. While there may be every desire on the part of the separate jurisdictions to work in harmony and for the common end, the one is at any time subject to what may be termed the arbitrary view which the other may entertain, or authority which it may exercise. The Dominion has the power to enact fishery regulations and restrictions, to prescribe the times of year during which fishing may be allowed, and to stipulate the implements which may be employed for the purpose. The Province may, among other things, issue or withhold licenses; it may authorize or refuse the use of certain implements of capture which may appear to it undesirable, though such implements have not already been prohibited by Federal action; it may grant a license for one month or longer, as it may consider proper, subject, of course, to the season of prohibition established by the Federal Government; it may cancel a license before the period for which it has been issued has expired; it may refuse a license for any locality, or for any authorized implement of capture, should it consider that fishing under such license would be a detriment to the fisheries, or to the industry as engaged in by another class of fishermen with other implements of capture; it may insert in its license a condition that fish under a certain size shall be returned to the water; and it may prohibit the sale of fish for a longer or shorter period. It will, therefore, be perceived that the powers conferred on the Province by the Judgment are even greater than those upon the Dominion; and it may be said that the Province, fully recognizing that fact, and conscious of the great responsibility imposed upon it, has firmly grasped the situation, and in dealing with these various matters has discharged the duty imposed upon it fearlessly and faithfully. It has early recognized that the fishermen are each year going behind, that the yield of our Great Lakes' fisheries is annually becoming less, that we cannot shut our eyes to the fact that this is the consequent result of the excessive fishing which has been carried on for the last

On the Grand River. (Stocked waters.)

Among the "Twenty Thousand Islands" of the Georgian Bay. Renowned Bass'fishing.

Lake of Bays, Muskoka. (Stocked waters.)

Muskoka River, near Baysville. (Trout water.)

half century, and which if continued must result in their complete annihilation, and that the time has come when the question cannot longer be flirted with. It has resolved itself into this: There must be immediate intervention on the part of the two great countries which these waters unite, whose sacred duty it is to devise means, and to take steps which will prevent such a calamity—steps which will ensure to our children's children their rightful heritage; steps which, while having these objects mainly in view, must not stifle, but encourage and develop an industry by which is supplied one of our most wholesome and nutritious of foods. Speaking for this Province, we believe that it would be possible, by the union of forces, to yet establish the fisheries of these Great Lakes on a basis of permanency and increased productiveness, one not only in perfect harmony with the public interests, but with the interests of those engaged in the industry. As was announced in the last report, the attenton of the border States has already been invited to the matter. Interviews between the Commissioners of the State of Michigan and Ohio and the Deputy Commissioner took place in Detroit in the month of October, and arrangements were completed for a general conference of representatives from all the States. A date in December was subsequently fixed for this meeting, but it was ultimately ascertained that a full attendance could not be obtained at the time named, in consequence of some of the Commissioners having peremptory engagements elsewhere. A postponement until a date in March was therefore, decided upon. It is gratifying to be able to announce that all of the States, without a single exception, have indicated an intense interest in the subject, and a full representation is expected. The adequate machinery can only be secured by the co-operation of the jurisdictions interested. Many discouragements will no doubt be met with before what is aimed at will be accomplished. But if proceeded with energetically and judiciously, success will ultimately reward our efforts. It will certainly not be the fault of those immmediately having to do with the administration if failure results. The first sod has been turned, so to speak.

The Biological Station in the Georgian Bay.

Dr. B. A. Bensley of Toronto University reports as follows:

Our first efforts last season were directed towards the observation of the spawning habits of the small and large mouthed bass. The season was well advanced at the time of the first observations (May 25th), but the shores of the shallow swamps and inlets were lined with the characteristic excavations or nests occurring in from one to three or four feet of water. A large number of the nests belonged to the Rock Bass (Ambloplytes), and some to Sunfish.

We attempted to hatch and rear samples of the eggs, but the experiment was unsuccessful, apparently because we had not available a sufficient supply of running water. Later in the season an efficient aquarium table and a pumping engine were installed, so that this difficulty will not recur.

During the remainder of the season we collected the young of the game and other fishes for the purpose of discovering the kind of food taken by them at different stages of growth. In connection with this we made a very extensive collection of the microscopic germs of the water, which constitute the first food of the young fish. These collections were made by means of silk nets, towed periodically on the surface and deep at eight stations passing from the open water of Georgian Bay to the first falls on the Go-Home River.

The collection for purposes of classification of the fishes in general, begun last year, was practically completed. Our best thanks are due your Department for the privilege of operating certain nets for this purpose.

With reference to the preservation of the game fishes of Georgian Bay, I would like to point out the probability that the close season is not sufficiently inclusive. Small-mouthed Bass were observed on the spawning beds towards the end of June, and our caretaker, an experienced fisherman, states that this is not exceptional.

You are probably aware that the supply of Pickerel (Dore) is rapidly becoming depleted. It is alleged that this is owing not to the enthusiasm of the tourist, but to illegal fishing, especially during the spring run to the rivers. It is interesting to compare in this connection the relative abundance of Bass with the paucity of Pickerel. The former appear to seek the shallow places in any locality, so that they do not congregate to any great extent at the spawning period in particular places. Moreover, they possess sufficient cleverness to escape from traps. But although they are thus naturally protected, the main reason for their abundance is to be sought in another way. Some years ago your Government justly prohibited the sale of Bass, establishing thereby their correct status as game fishes only. The wisdom of this provision has already made itself apparent. The question now is whether the Pickerel are any less deserving of additional protection from the same standpoint. The difference in gaminess of the two species is well known, but this does not determine their relative value. In Muskoka Lake, where, notwithstanding the advanced state of depletion, the conditions are more normal than in the Georgian Bay, the pickerel are much more staple fishes from the tourists' and cottagers' standpoint than the other.

It might be urged that the prohibition of the sale of Pickerel would be a hardship to certain fishermen, but these fish never have been and cannot be regarded as general food fishes, such as the whitefish and herring, and a fishery based or dependent on them is unnatural, and would be better abandoned. The region of the Georgian Bay can have no great value to the fishermen unless the whitefish and herring fishery is productive. On the other hand, it is becoming more and more valuable as a tourist resort, and its value is greatly enhanced by the presence of game fishes. The latter should be, therefore, strictly protected for this purpose, and their depletion from other sources prevented.

Destroying Coarse Fish.

The work of destroying pike and other coarse fish in the Nepigon has been continued, and thousands were destroyed during the summer; tons of ling and suckers have been taken by hoopnet fishermen in eastern Ontario, and a marked improvement in the game fish will soon be manifested.

Legislation.

The legislation extending the prohibition of the sale of speckled trout, bass and maskinonge for a further period of three years has been universally approved.

Specimens.

A few additional specimens have been added to the collection of mounted fish.

Asknowledgments.

The Department desires to express its appreciation of the courtesies extended and the assistance rendered by the Chief Warden of the State of Michigan, the Hon. Mr. Chapman, to the Deputy Commissioner during visits to Detroit on public business ;

And also by the railway companies, for without their co-operation it is needless to say but little progress could have been made with the work of transplanting fish.

Reports.

The reports of the overseers which follow contain much information not contained in the statistical tables, and they are, therefore, commended to the perusal of those desiring a fuller knowledge of the condition and nature of the fisheries than the tables impart.

In conclusion, it may be superfluous to add that the work of the Department is steadily growing as its field of usefulness increases, and as its operations are extended ; and that, having regard to the important and extensive duties to be performed, the expenditure has been as economical as possible.

All of which is respectfully submitted

S. T. BASTEDO,
Deputy Commissioner.

31st December, 1903

OVERSEERS' REPORTS.

J. C. Judd, District Overseer, Morton, reports that the district under his supervision embraces over 600 lakes, with such a variety of attractiveness and diversity of features that it is almost inconceivable. He says it is doubtful if any territory in the world having the same area can be found containing sublimer scenery, better fishing, and within easier access, a territory "where civilization has made its way and yet not marred the beauty of nature," where possibility is beyond the dream of the ambitious angler.

There has been within the last few years a wonderful awakening of interest on the part of the people, and a large increase in the number of summer visitors. The attention which your Department is giving to the matter of protection is much appreciated.

During the past season special effort has been made to interview boatmen and tourists, and to impress them with the fact that the returning to the water every black bass caught would soon develop better fishing, and increase the small-mouth bass which they desire, much more rapidly than the stocking by your officers, and it is gratifying to know that in many lakes on the Rideau this idea was carefully and willingly observed. One hundred black bass are said to have been caught in one day by four tourists and not one bass killed. Further, it was suggested that if this was brought to the attention of tourists as a special request by way of notices distributed at the hotels, it would do much good. There is a desire on the part of boatmen and anglers to further limit the number of catch and increase the regulation size of bass. Many catch and kill to the limit, and occasionally to excess, yet it is thought that a lessening of limit will be adhered to quite as well, and that the interested feeling of tourists in retaining good fishing is such that the great majority of them will frown upon an excessive catch. Last season the tourists were in harmony with the above, and were ready and willing to call the attention of the overseers to such, and even to infractions. These are certainly encouraging features.

Licenses. As mentioned in a former report, the issuing of licenses ought to depend upon the condition of lakes. Where it is known that the catch of bullheads is very small, hoopnet licenses ought not to be granted.

The "Eva Bell." The patrol boat "Eva Bell" in the spring had a thorough overhauling. The old boiler was replaced with a new one, and some of the timbers and planking were also renewed. She was carefully inspected by the Government inspectors at Kingston, a certificate of which she carries on board, and has given good satisfaction during the year. Perhaps the best evidence which can be given as to her importance on this chain of lakes is to state the fact that, after the close of the season when she had to make for port in consequence of ice taking, there have been some twenty-five convictions for illegal net fishing, while during her patrol no such infractions were heard of. Her former master during the summer resigned to accept a more lucrative position, but his place was taken by Mr. John Roddick, who will make a courteous, careful and vigilant officer, as evidenced by the fact that he seized a number of nets during the early part of the fall. He would recommend that a boathouse be built for the boat at Jones' Falls, midway in her patrol, and where coal may be safely kept, and where she could be hauled out for winter.

Anglers' Associations: Your recognition of anglers' associations is another encouraging feature, and attention is again called to the importance of these associations. Their formation will eventually be the soslution of the problem of protection. Every year furnishes further evidence of this fact.

These associations, like all others, can only be properly organized and kept active under the supervision of an officer, who is constantly in touch with them.

As a District Overseer, he has found a ready response towards organization, and without friction in our ideas as to what is required for their localities, and he is the recipient of questions frequently submitted which are weighed together, and always with the best possible feeling.

District Overseer Lamarsh, Wheatley, reports that he has been over his district several times, and reported to the department as to complaints made, etc.

He is sorry to again report a continued decrease in the catch of herring in Lake Erie; in fact there has been a general decrease in most kinds of fish caught the past year. The herring, the most valuable fish in Lake Erie, show a continuous decrease since 1899, and the fishermen are becoming fearful that the continuation of gill net fishing by tugs in the head of Lake Erie, and poaching by the Americans in Canadian waters will very shortly have the herring all but extinguished in Lake Erie. Already many of the pound net fishermen are considering whether it is worth while to take out licenses again. If the Department cannot devise some method or policy to preserve the herring fisheries in Lake Erie, they must look out for a tremendous falling off in the revenue from that source, and as very nearly one-half the whole revenue of the Department comes from the fisheries on Lake Erie, the Department should have a great concern in their preservation. From his observation of the gill net fishing he is convinced that it is a mistake to permit gill netting for herring in the fall, as most of the fish caught are spawn herring, and it only stands to reason that if you destroy the parent fish while in the act of reproduction it will not be long before the species will become utterly extinct.

The Department has made regulations for the preservation and propagation of black bass, and other kinds of fish. Yet in the face of the continuous decrease in catch of herring during the past five years, nothing has been done for the protection of the herring fisheries by withholding privileges which are destructive to parent fish, or making regulations for the protection of the herring.

The very early set in of winter, which started about the middle of November, again caught a number of nets in the ice between Point Pelee and the Detroit River, some losing all their nets, stakes, etc.

He is still of the opinion that it would be in the interest of the fishermen and protection of the fish, if the Department could have all fishing suspended by the 20th of November each fall.

From fishermen and others along the shore from Point Pelee to Port Stanley, he learns that the Americans enjoyed about two months good fishing, from early in March to the first of May, in Ontario waters, without molestation. The lake opened early in March, and navigation began about the 10th. The Dominion G. S. Petrel did not get down from Upper Lakes till the first of May, with the result that American tugs were scattered all along our shore, fishing. The Petrel should go into commission here as soon as navigation opens, which is usually early in March.

Complaints come from some of the fishermen in Lake Huron of damages to nets by rafts of logs, and he thinks some additional legislation necessary for the protection of the fisheries from such causes.

He would say in conclusion that, while there has been a great decrease in catch of fish, that the prices have increased greatly, which has in some measure compensated for decrease in catch; although those who depend on the Herring principally actually lost money in the season's operation.

The price of fish has risen so high that good fish has become a luxury, instead of food for the massses.

District Overseer McCargar reports that the fishermen had hard luck during the spring in the Bay of Quinte, Weller's Bay, Consecon Lake, and the Trent River sections. There was but a small catch of bull heads in all the above places, both spring and fall. The water was so high that the fish kept in the marshes, and during the fall it was

so low that the nets were partly out of the water. This, however, applied more to Consecon Lake and the Trent River. The angling was not so good in any of the waters mentioned above, on account of the high water and the high winds, and he thinks the abundance of young shad in the Bay of Quinte had a lot to do with the bad angling. They had plenty of bass, but they would not take the bait, there being a glut of natural food. He thinks the Ontario Government should extend the work of stocking lakes where there are no fish, and re-stocking some that have been fished out, and that the small inland lakes should not be overlooked. A number of natural hatcheries could be started along the Bay of Quinte at a very small expense. There are a few coves where they could be built cheap. The water would be the same as the bay water. The parent bass could be put in the enclosure in the spring, but removed after spawning. The fry could be left until from three to five months old, and then let loose. They would then be able to look out for themselves. The fishermen, he says, along the Bay of Quinte observed the law fairly well. He seized a few gill nets in the bay, below Deseronto, and destroyed them. A quantity of bass about five months old were put in the Bay from the bass ponds this fall. A hatchery should also be started on the Trent River above Healy's Falls. There could be one built at a small cost on Mr. R. Keller's place. The parent bass could be easily secured, and the C. P. R. and G. T. R. stations being only about six miles away, they could be conveniently shipped. He thinks spring fishing should not be allowed in the Trent River or between Peterboro and the St. Lawrence River. The spring is the time when most of the fish in these waters spawn; and they should not be disturbed. Fishing with hoop nets, in the fall of the year, will help the game fishing rather than hurt it. The black bass are a very hard fish to catch in a hoop net. They will not lead except in the spring, near spawning time. By stopping spring fishing, it would protect not only the game fish, but pickerel, which is a fine food fish.

The fishermen observed the law only fairly well. He had to fine two men in Prince Edward County, one for shipping black bass, and the other for refusing to show from whom he bought fish. In each case a fine of $10 was imposed. He seized three gill nets below Deseronto, and burnt them up. He also seized a quantity of hoop nets at the west end of Weller's Bay, and has them yet for sale. He also seized a night line in the Trent River, and one in Hogg Lake.

District Overseer Pratt, Penetang, reports that fish of all kinds, except Pickerel, are very much on the increase. Game fish, he is fully convinced, have not been so plentiful for years, Whitefish about normal, Trout in greatly increased numbers, with a more than corresponding increase in size, Pickerel much less than average, and for the first time he reports German Carp as taking a distinct place in the fish of the Georgian Bay. As yet they are practically limited to shallow water from Waubaushene to McRae's Bay, and as considerable apprehension exists as to the ultimate results of the influx of this fish, he has given the subject some study, with the result that so far there does not appear any good reason for believing that they will prove destructive to any but a low grade of fish, or, in other words, fish that frequent the same kind of water, viz., shallow, reedy bays, such as pike, suckers, green bass, etc. They will, however, multiply very fast, and may eventually destroy feeding grounds of better fish.

Tourists, notwithstanding the unfavorable weather, were in much larger numbers, and it is a certainty that each recurring season will see them in continually increasing numbers. Much more pretentious houses, both hotel, club and private houses, are being built, and catering to the tourist fraternity, especially in providing good fishing for them, is, he believes, the largest factor to be taken into consideration in making and carrying out fishing regulations. Of course he does not wish to be understood as referring to anywhere but his own district.

Tourists are observing fishery regultions much better than formerly, although the fishing hog is still with us, and he must, at the risk of being considered importunate, reiterate his recommendation of last year that a synopsis of the law be placarded freely.

Illegal fishing by fishermen is not abating, in fact it would be on the increase if it were not for the fact that fewer are engaged in it, due to high wages for unskilled labor in other occupations.

The reason for the increased tendency to fish illegally, especially trap netting, is better facilities, such as gasoline power, etc., while at the same time provisions for coping with it have not kept pace, in fact they are wholly inadequate for the purpose.

Regarding his own operations, practically nothing was done untl June 1st, when he received a telegram to proceed with his man to Little Current to take over the sailing cruiser "Maud," at that time in charge of Overseer Oliver. He did so, and continued to use her in his district until the close of navigation. He found the "Maud" to be a staunch and seaworthy craft, but unhandy for cruising purposes. He would recommend that she be dismasted and furnished with gasoline power.

As gasoline is now in general use for power, he can see no reason why fishermen in the Georgian Bay should be placed under an embargo by being prohibited from using it under license; they will use it in any event, and an increased revenue may as well be derived from it.

District Overseer Thwaite, Oshawa, reports that the local Overseers have performed their duties faithfully, considering the amount of remuneration they receive. He thinks if the Department would impose a license fee of $5 per rod for the season for all non-residents of the Province, the extra revenue derived therefrom would enable the Department to be more liberal with th local overseers, thereby securing more efficient service. The fishing season on Lakes Simcoe and Couchiching has been a most successful one. The anglers all report satisfactory catches. The work of restocking the lakes with the gamey Black Bass is a very popular work, and the people are looking forward to good results. Stony Lake still continues to attract large numbers of tourists from the American side, who fish incessantly from early morn till late at night. He thinks a license fee of $5.00 for the season should be charged these parties, and does not believe it would deter one in a hundred from visiting the lake. Stony Lake is a favorite resort for tourists from all over the Dominion, as well as the United States. There are some two hundred cottages erected on the various islands in the lake, some on a most elaborate scale. The fishing has been all that could be desired. He again urges the desirability of placing fishways in the dams on the Indian River.

The catch of Maskinonge and Bass in Rice Lake has been very good during the past season. The licensed fishermen on the lake are also well pleased with their catch of Mudcat and other coarse fish. Lake Scugog is noted for good Bass and Maskinonge fishing, several Maskinonge were caught weighing over 20 lbs. each. He is glad to say that the catch this season has been satisfactory to the numerous tourists who visit its shores.

The Dominion Government contemplate building a concrete dam on Scugog River at Lindsay, and he recommends that a modern fishway be placed in it.

He also recommends that the close season should be from 1st December till the 1st of July, and that some protection be given frogs, or they will soon be a thing of the past. He is of the opinion that the number of Bass and Maskinonge to be caught in one day should not exceed 2 Maskinonge and 8 Bass, and that no Bass measuring less than 12 in. long should be kept out of the water. He would urge that the use of spears be absolutely prohibited, for they are the principal cause of the destruction of Lunge during the spawning season. The dumping of saw mill refuse in the rivers and lakes has entirely ceased.

Overseer Allan, Wallaceburg, reports that the angling in his division has been all that could be desired. The anglers who visited this locality are loud in the praise of the sport that this locality affords. One in particular told him that he had angled in all parts of Georgian Bay, and in a great many of the angling waters of the United States,

and says that he has found nothing to equal the waters of Lake St. Clair; the fish are gamey, and the surroundings are pleasant and easy of access. A serious difficulty they have to contend with is the angler who fishes for the market; he of course comes as a tourist and takes out a permit to angle in Canadian waters, and is on the waters at 5 o'clock in the morning, and stays out all day long, rain or shine, catches all he can, puts them in ponds and keeps them alive until he gets sufficient quantity to ship; he then sends them to Detroit or Mt. Clemens by steamboat, and they are there sold to the large hotels at a good price, and the proceeds are used to defray the expenses of this so-called sportsman. The months of September and October are the best months for Bass fishing if the weather is warm. There were a few new anglers, too, in that locality during the year, but they did not remain long on account of the weather being so rough and wet at that time.

The Johnson and the Bassett are said by the anglers to be the best waters they know of. The Bass are on the increase throughout his division. There was a large increase in the catch of the different kinds of fish over the previous year, 90 per cent. of the total catch is exported and 10 per cent. is used for home consumption. The close season and other regulations of the Department were well observed, no cases of illegel fishing having come to his notice.

There is no mill refuse allowed to run into the river, and there are no fishways, in his division.

He recommends that no spring fishing with nets be allowed, and that the season in the fall be changed from 1st October to the 1st September. This, he says, would be satisfactory to the fishermen, also to the public generally.

Overseer Armstrong, New Liskeard, reports that there were eight licenses issued in his district during the year 1904, which were for local and domestic purposes only. With the exception of fishing done by Indians in some of the remote small lakes, the fishery laws were fairly well observed.

The district is fast becoming popular as a resort for tourists, there being good Bass and Speckled Trout fishing in Lake Temagami, and other small lakes on the Montreal River.

There are very few game fish in Lake Temiscamingue, with the exception of Bass and Maskinonge; the former are only found at the lower end of the lake. Other kinds, such as Pike, Pickerel, Shad, Herring, Whitefish, Sturgeon, Channel Cat, and Eel are plentiful; the Whitefish and Herring are reported to be of excellent quality.

He understands that the Province of Quebec has issued licenses to export fish from Lake Temiscamingue to the U.S.A., and thinks it might be well for the Department to consider the advisability of issuing licenses for export also.

He regrets to say that the local saw-mill owners are still disregarding the act respecting sawdust, and are allowing it to be carried into the lake by high water in the spring and fall. More stringent steps will have to be taken to stop this violation of the act in order to protect the fish.

Overseer Barr, Renfrew, reports that there has been a slight decrease in the catch compared with that of last year, owing to a less vigorous prosecution of the fishing by the licensees.

No fish were exported, the entire catch being used for home consumption. No violations of the close season or other regulations of the Department came to his notice. In many cases the mill owners still allow the refuse from the mills to run into the streams. There are no fishways in the district. A few tourists visited his district during the past season, mostly from Philadelphia. The Bass and Maskinonge fishing in Chats Lake was excellent, and good Speckled Trout fishing was had in the head waters of the Bonnechere and Petewawa.

Overseer Bailey, Callander, reports that there has been no net fishing in his district. The close seasons and other regulations were well observed. No complaints of illegal fishing have come to his notice. The angling for Bass and other game fish has not been as good the past three seasons as formerly ; he cannot account for it.

There has been some good Brook Trout fishing in some of the streams in the near neighborhood.

The lake is becoming more popular every year as a summer resort, and the many tourists who visit its shore are rapidly taking up the desirable islands.

Overseer Baechler, Nipissing, reports that there does not appear to be any noticeable increase in the number of Black Bass, Maskinonge or Speckled Trout. At the opening of the season in June and for a couple of months afterwards, there is good fishing for Bass with rod and troll, but during the latter part of the tourist season they appear to vacate the main shores and are only found in quantities among the islands some miles out. There are no Speckled Trout in the large lakes, some are found in the South River, above the shutes, but in ever decreasing numbers. He would advise the placing of Trout fry in the river, as the large number of logs that used to pass down the river is a thing of the past. The Trout would not have to contend against the pollution of the waters such as then existed. There are not very many Maskinonge ; occasionally a very large one is caught. They seem to be more plentiful towards and in the French River. He mentions that inhabiting the small inland lakes some few miles from the large lake, are innumerable Black Bass of a small size, weighing up to a pound, and in equally large numbers are the Silver or Widemouth Bass, but they do not seem to grow to the large size obtained in the large lake.

As there were no licenses issued in his division he cannot furnish any data as to the value and quantity of fish caught during the year. There are myriads of Pike and Pickerel in the spring, and some Whitefish and Herring are caught in the fall. During this past summer the number of tourists increased considerably. Some 34 members of the Keystone Camping Club, Pittsburg, made their first visit to the mouth of South River, and were so pleased with their location that they intend bringing some hundred more members of their club next year. In concluding, he says that there are no fishways on the shutes on South River. In the first falls encountered in their passage upriver the fish are stopped. If they could master this shute they could easily ascend a long way up stream.

Overseer Geo. Bilton, Rideau Waters, reports a slight decrease in the catch, owing to the fact that there were about one-third fewer licenses issued this year than in former years. There has been an increase in the catch of Pike, also of Catfish, which he thinks goes to show that the waters are not being over-fished with hoop nets. In Upper Rideau Lake, Wolf Lake and Otter Lake, the Ling are becoming more numerous every year, and he would suggest that some means be devised to exterminate them, as they are very destructive to all other fish. Th Bass fishing has been first-class. The tourists who frequent the waters are well pleased with the sport afforded; and say that the Rideau waters furnish the best Bass fishing they have found in their travels. A large club house is being erected on Mud Lake for the accommodation of the ever-increasing tourist trade. He would recommend that the close season for Salmon-Trout on the Lower Rideau River be changed to the month of October, that being the month in which they spawn. If the season were changed to that month he is of the opinion that it would be a great protection, as at present there are a great number of people who troll during that time, and most of the fish taken are filled with ripe spawn. The close season for Bass he says was well observed, but there were some flagrant violations of the law in fishing for trout and whitefish during the fall close season. He had thirteen parties summoned and convicted, a fine being imposed of ten dollars in each case.

Overseer Blondin, Cornwall, reports that there has been no net fishing; only angling. The angling has, however, been unusually good. Fish have been plentiful, especially

pickerel. One man, whose business is to guide tourists, reports 1,250 lbs. caught. Another man who follows a similar occupation reports a catch of over 700 lbs. of pickerel and other fish, such as pike and perch. There has been an increase in the catch of Maskinonge. An Indian reports a catch of 27, and in all a catch of about 70 Maskinonge has come to his notice, having been caught by different men. All the fish caught are for home consumption.

There has been a great number of tourists, and the district seems to be becoming more popular every year as a summer resort.

No illgal fishing came to his notice, the close seasons have been well observed. There are no fishways in his division.

Overseer Bowerman, Port Perry, reports that the fishing has not been as good as the previous year, owing to the very low water ; this is a very serious drawback to the angling, on account of the great quantities of weeds exposed.

He suggests that winter fishing through the ice be prohibited, and that the close season should be from 1st December to 1st of June.

The laws and regulations of the Department were well observed.

Overseer Brady, Lindsay, reports that maskinonge and bass were not as plentiful as in former years, although much larger in size. Two-thirds of the fish taken are used for home consumption and one-third is taken by the tourists to points in Ontario and United States. A very large number of tourists from the United States visited that locality this year.

With the exception of a few old offenders who were fined for fishing during the close season, the law was well observed. During the year he confiscated four snares, five spears, one jack-light, and one canoe, all of which he destroyed. There is only one fishway in his division, and it is in good repair. He would recommend a close season for frogs, from the 1st of November to the 15th of July, as in the fall and spring of the year the frog lamp is used by poacherss instead of a jacklight to spear fish, and no doubt a great many Maskinonge are killed. Besides this, ducks will not remain to hatch where they are continually disturbed at night by the frog lamp. He also recommends a close season for Maskinonge and Bass from the 1st of December to the 1st of June, or as long as Bass are allowed to be taken through the ice with bait it will be impossible to protect the Maskinonge from being snared.

Overseer Brown, Baysville, reports that the Speckled Trout fishing in the river has been excellent, and that in the Lake of Bays the angling for Lake Trout has been all that could be desired. The Black Bass that were planted in the lake by the Department, he says, are doing well. Several parties have reported having seen large quantities of the young fry in different parts of the lake. The settlers are fully alive to the importance of protecting this fish, as they realize that it is the ideal fish from a tourist's point of view, as it can be aken a any time of the year, and are as gamey as any fish that swims. The close season and other regulations were well observed ; no cases of illegal fishing came to his notice.

Overseer Brown, Rockdale, reports the catch of this season to be lighter than that of former years. Maskinonge and Bass are on the increase in the lakes, and Speckled Trout in the creeks are reported as plentiful.

A large number of tourists visited the district during the season, and were pleased with their catch, and some are erecting cottages.

The close seasons were well observed, and no cases of illegal fishing came under his observation.

Overseer Cattanach, Wolfe Island, reports that the Bass fishing during the recent season was largely in excess of that of former years. The district is becoming a very popular summer resort, and the class of people who visit the locality are such as they are very sorry to part with and pleased to meet again. The anglers express

themselves as satisfied with the fishery regulations and the general enforcement of the laws. He is of the opinion that those who come from year to year spending their vacation should be dealt with most leniently. In consequence of the late opening in the spring, the catch of the licensed fishermen was not as large as in former seasons, the spring fishing being fully two weeks shorter. The fall fishing for Bullheads, however, has been prosperous, which makes the average catch for the season a fair one. He had but very little trouble with the tourists, there being a general disposition on their part to respect the laws, when made fully known to them.

Overseer Clyde, Cataraqui, reports that there has been a decrease in the catch of Pike, but an increase in the catch of Perch and Catfish. In the Rideau Canal there is an abundance of Dogfish, which are very destructive to the spawn of game fish. He has instructed the fishermen to destroy all Ling they find in their nets. The close seasons have been fairly well observed. A few cases of illegal fishing came to his notice, in each case the parties being fined according to law. He confiscated no fishing gear of any kind. He is of opinion that no Bass measuring less than 12 inches should be taken, and also that resident settlers who fish for domestic purposes should have 100 yards of nets, and be charged a fee of $2 each.

There are no Speckled Trout in his division, but Bass and Maskinonge fishing cannot be excelled. The district under his supervision has become popular as a resort for tourists, especially Loughborough, Dog, and Cranberry Lakes.

Overseer Clunis, Claude P.O., reports that the Trout fishing in his division was not quite up to the catch of last year. So many of the tributaries of the Credit River are being leased by private parties that the waters open for angling to the public are very limited. This, he thinks, fully accounts for the shortage in the catch.

No cases of illegal fishing came to his notice. The close season he reports as being well observed. There was no mill refuse allowed to pass into the stream in his division. All other regulations were well observed.

He reports a large number of tourists at the Caledon Club during the year.

Overseer Couseneau, Windsor, reports that the fishing operations this year in the waters under his supervision were not so good, from the standpoint of quantity of fish taken, as in the season of 1902, but from a financial standpoint if was a more successful season, owing to the increased price received for German Carp and other coarse fish. The catch of Whitefish for some unaccountable reason was a complete failure, the fish apparently not leaving the lake for the river during the fine weather in the fall season. The fishermen did not derive any material benefit from the abolition of the Whitefish close season, owing to the winter setting in so early in November.

Overseer Craig, Glenburnie, reports that the catch of fishs for 1903 was not so good as in 1902, Catfish being much below the average, while Pike and Coarse fish were about the same as in the past. Prices were good, which helped the fishermen very much. The catch of Herring was up to the average. They are still very numerous, and average much larger than formerly. All the Herring licensees were well satisfied with their catch.

Tourists are still increasing, coming and going during all of the angling season; many of them camped on Bob's Lake and Green Bay. Bass fishing was better than for many years. The lakes are becoming cleared of Ling by hoopnets; tons of them were taken and destroyed during the year. In 14 Island Lake, where hoopnet fishing was prohibited, the Ling are increasing very fast, and Bass fishing has not been so good as in former years. There is still a good demand for fish from the United States. The home demand is increasing yearly.

The number of Bass tourists should be allowed to kill in one day should be reduced to eight, and the lengths increased to eleven or twelve inches.

Several fine cottages were built on some of the lakes last summer, which added much to their beauty.

The laws and regulations were fairly well observed. He destroyed two hoopnets, three gill nets, and a number of nightlines, which were unlicensed.

Overseer Crotty, Bothwell, reports that the catch in his division was about the same as in former years, and that all were used for home consumption. No abuses came to his knowledge. The close seasons were strictly observed. There are no dams or fishways in his division.

Overseer Driscoll, Howe Island, reports an increase in the catch, and that the fish were of a better quality than in former years. A great number of tourists visited his district during the year, and they all report excellent sport. The laws and regulations of the Department were well observed. No cases of illegal fishing came to his notice.

Overseer Dickson, Westwood, reports that the tourists who visited the lake during the season were well pleased with the catch, all kinds of game fish, such as Bass and Lunge, being very plentiful. The lake is a favorite resort for tourists, who are becoming more numerous every year.

Overseer Duchesne, Treadville, reports that he has found very little change in the condition of the fisheries in his division from that of previous years. The laws and regulations of the Department were well observed. The angling for Bass and Pickerel has been first-class, and the anglers appreciate the efforts that have been put forth to enforce the laws; they realize the importance of protecting these valuable fish. The fish caught by the licensed fishermen are all used for home consumption, none being exported. There are several sawmills in his division, but the owners are careful that the refuse does not run into the water. Taking all things into consideration, he found everything from the fishing standpoint in a very satisfactory condition.

Overseer Free, Byng Inlet, reports that the close season and other regulations of the Department were well observed. Several cases of illegal fishing with trapnets came to his notice, and in each case the net was confiscated, but the parties fishing them could not be found. The angling has been first class. Bass and Pickerel fishing has been better than he has known for the past ten years. Quite a number of tourists visited the locality during the season, and they were all well pleased with the catch.

Overseer Flynn, Mountain Grove, reports that the licensed fishermen in his division were unable to supply the local demand for fish, consequently a larger portion of the fish caught were sold in that locality that heretofore. The number of tourists visiting his district is increasing every year, and are well satisfied with the sport afforded. Some who were there two years ago notice a decided improvement, both in the quantity and size of the fish caught. In the waters where hoopnet fishing has been permitted for several years past there is a very noticeable increase in the quantity and quality of the game fish taken. Ling have been caught in great quantities by the nets. This is a nocious fish, and it is well that the waters should be rid of it.

The spring fishing for Pike and Suckers was very successful; many Ling were also destroyed. The settlers are taking much more interest in the protection of game fish than formerly. They realize the importance of the tourist trade to the locality. He reports having secured four convictions for illegal fishing, a fine of $10 and costs being imposed in each case; also that four parties were allowed to go on suspended sentence. On the whole, the laws and regulations of the Department are fairly well observed. He recommends that a bonus be paid to the fishermen for destroying Ling.

Overseer Freeman, Northumberland County, reports that the fishing in his division has been about the same as last year, although his returns show that there has been a less quantity taken. He says it is owing to a less vigorous prosecution of the fishing by fishermen, some of them not fishing more than half of their time. The bay fishing, according to the time spent in active fishing, shows much better results than the year previous, the principal fish taken being Pike, Bullheads, Perch, and Rock

Bass. These fish are taken in large quantities; one fisherman alone caught three hundred dollars' worth of Bullheads in three weeks.

Not many tourists visit the locality, although it has the best angling waters along the shore of Lake Ontario, and the magnificent scenery and camping grounds cannot be excelled in the whole Province.

There are no fishways in his division. No mill refuse has been allowed by the millowners to run into the water. The close seasons and other regulations of the Department have been well observed.

Overseer Gardner, McDonald's Corners, reports that the Bass fishing in his division is very good, but that the district is situated in such a way that it is hard to get at it: still, they were visited by a few tourists during the past season, who were well satisfied with the sport afforded. The laws and regulations of the Department are well observed.

Overseer Gerow, Port Perry, reports that owing to the very low water in Lake Scugog during the year the Maskinonge fishing was not quite so good as in former years, but that the Basss fishing was better than it had been for some years. This, he thinks, is owing to the fact that there were not the usual quantity caught through the ice during the winter. He recommends that all winter fishing be stopped. The different close seasons were well observed. No cases of illegal fishing came to his knowledge.

Overseer Gibson, Strathroy, reports that the Bass planted by the Department in his district are doing well; the stream has been set apart for a term of years, and the local anglers are looking forward with a great deal of pleasure to the time when they can try their luck with the finny tribe.

The laws and regulations have been well observed. There is no mill refuse allowed to run into the water in his division.

Overseer Gillespie, Campbellford, reports that the close season has been generally observed; very few complaints were made, and no violations came to his notice, except in one or two cases of spearing. He visited the places where spearing was said to be going on, and is pleased to say that his visit had a good effect, and stopped it to a great extent. The hoopnet fishing has been very poor, especially in the waters between Percy Boom and Chisholm Dam. He accounts for the scarcity of Bullheads, or Catfish, in that section from the water having been drawn off the drowned lands above Chisholm Dam before the small fry had a chance to reach deep waters, being left in pond holes or shallow creeks, where the waters becoming stagnant during the summer months they die. He is afraid that fishing will be poor until Chisholm Dam is rebuilt; there is about two-thirds of the dam gone at the present time. From Healey's Dam down to the foot of Rice Lake the fishing has not been up to former years, and he thinks that if no license were granted in the spring for a few years the fishing would be very much improved. Angling during the open season for Bass and Lunge on the whole has not been as good as former years from Healey's Dam to Hastings. He visited the different summer resorts to ascertain the cause for this, and the reason given him was that the water was kept so high at Healey's Dam that the Bass and Lunge did not take to the deep waters, but remained among the reeds, where there was plenty of feed. In his opinion there are as many, if not more, game fish in these waters as in former years, but on account of the waters being kept so much higher, the fish have more territory to roam over.

Overseer Gibson, Mallorytown, reports that the territory allotted to him on the St. Lawrence River is entirely within the limits of the International Park. In the arrangements for this park the Americans had everything to gain and the Canadians everything to lose.

The angling in the river, he regrets to report, has not been up to the average, for Bass and Pike especially. He has given his district close supervision during the past

two years. He seized and confiscated a number of gill nets during the season, and in almost every case they were, in his opinion, the property of Americans.

Some little difficulty was experienced with parties from the United States using seines for catching Minnows, and although no seizures were made, he succeeded in checking the practice. He apprehends, however, that this will be repeated next year during the tourist season unless the river be carefully guarded.

There was no dynamiting in his district, and the law respecting the pollution of waters was strictly adhered to. There are no fishways. Much difficulty is experienced in getting returns of the catch from fishermen at the end of the season, and he would recommend that an additional charge of $1 be made in each license, and that such amount be refunded at the end of the year on receipt of the return of fish taken.

He would recommend that the limit for a catch of Bass for one day be made six, and none taken under a length of twelve inches, and that a close season for Pike be made the same as for Bass, and that spearing and shooting of Pike in the spring on the marsh should be stopped, or in a few years the St. Lawrence River will be cleared of that kind of fish.

The Maskinonge fishing in the river is becoming very popular in the months of October and November. The tourists have had good success, and report large catches. This is a growing fad, and has only been taken up in the last two years.

Overseer Goulette, Gananoque, reports that the Bass fishing has been very good, but in size the Bass are much smaller than usual, which arises probably from over-fishing. A great many American tourists visited the district during the season, and were well pleased with their catch. Pike or Pickerel have been very plentiful.

All the fish caught by the licensed fishermen in the back lakes were exported to the United States. The catch of coarse fish was fully as good as in former years. The close seasons and other regulations of the Department have been well observed, only one case of illegal fishing having come to his notice.

Overseer Graham, Fenelon Falls, reports that as far as he could learn the catch of fish in his division was about the same as last year.

There have been no complaints made to him, either directly or indirectly, of illegal fishing, and no cases have come under his personal observation.

The Kawartha chain of lakes is fast becoming popular as a summer resort, especially in the vicinity of Fenelon Falls, and the tourists who visit the waters are all well pleased with the sport afforded.

Overseer Hadgraft, Port Dalhousie, reports that the season has been very unsuccessful one. The fishing for Herring and Perch was very poor all spring and summer. In the latter part of October and November the Herrings are generally along that shore in large quantities, but this year they were not nearly so plentiful as in former years, and the very rough weather that prevailed prevented the fishermen from getting but a very few lifts before the run was over. The large price that was paid by the American buyers partly made up for the failure in the catch, three and four cents per pound being paid for Herring in the rough. One tug secured as high as two hundred and fifty dollars for one lift.

The angling on the grass beds at 15 and 16 Mile Pond was better than last year, owing largely to the appointment of two overseer on the spot to protect the interest of the angler.

The angling for Perch at Port Dalhousie was very good, while there was a notable falling off in the number of Pickerel and White Bass caught in the Welland Canal. He cannot account for the shortage.

The commercial fishermen on the Niagara River complain of the new Order-in-Council passed by the Dominion Government regarding a close season for Sturgeon. Grounds that were formerly fished by both Canadian and American fishermen are now open only to Americans. This, he thinks, should be rectified.

The close seasons and other regulations were well observed. He has had some complaints of illegal fishing on the Niagara River, which is receiving his attention.

Overseer Howard, of Collingwood, reports that the fishing in the waters under his supervision has been as good the past year as any since he has been acting as Fishery Overseer. There were not as many fish caught during the season, but it was not on account of any scarcity of fish, but because of the very rough weather that prevailed throughout the year.

The angling for Brook Trout and Black Bass has been very good.

The close seasons and other regulations were well observed. He finds the fishermen willing to obey the law, as they consider it much to their interest to do so.

Overseer Huntington, North Bay, reports that the fishing in his district has been better this year than last. On Lake Nipissing it is better, owing, he believes, to the large number of Sturgeon taken from the waters by the licensed fishermen. The reports from tourists on this lake as to Basss, Pickerel, and Maskinonge fishing certainly surpasses anything he has heard of elsewhere in Ontario. The Speckled and Grey Trout fishing in the inland lakes, especially along the Temiskaming and Northern Ontario Railway, is excellent. He has seen Speckled Trout caught in Pine, Goose, Anderson, Rabbit, Rib, and Temagami, and numerous other smaller lakes, that would average two pounds each, and some of them weigh over five pounds. Rib, Temagami, and Rabbit Lakes are now, without exception, the finest Trout lakes he knows of in the Northern Territory. Grey Trout readily take the bait in the spring and early fall, and he has seen some weighing from twenty-two to twenty seven pounds taken with the rod and line from some of the lakes mentioned above.

He would suggest the adoption of strict measures governing some of these Trout lakes as to catch, weight, etc., similar, in fact, to the Nepigon regulations. He is glad to report that no serious violations of the fishery law have taken place in his territory, and that the law on the whole has been very well observed.

Overseer Hughson, Orangeville, reports that in many of the rivers and lakes where Speckled Trout formerly were to be found in great numbers are now completely fished out, and would require re-stocking and careful protection to restore them to their original state. He would like to see the lakes in his division producing good fish, in order that the people could be supplied with good angling, and would like to have the waters stocked with Black Bass, which, he thinks, would thrive well in those waters. At one time all the streams were well filled with speckled Trout and Suckers, but the Suckers are the only fish left. The laws and regulations were well observed.

Overseer Johnson, Brantford, reports that the angling in the Grand River during the past year has been good; the Bass and Pickerel have been a good size and quite numerous. Some fishermen also report good trout fishing. The Bass consigned here arrived in good condition, and were successfully planted in three different places above and below the dam, and in the canal leading to Mohawk Lake. The people fully appreciate this work.

The sporting public think it a wise thing that the Department set the stocked waters apart for a term of two years. At the expiration of that time there should be good angling. Two cases of illegal fishing came under his notice, and convictions were secured in both cases.

Overseer Johnson, Parry Sound, reports that the fore part of the tourist season was cold, but the weather in August was warm, and the tourist trade was good. In interviewing a good many of the tourists they stated that the angling both in Georgian Bay and the inland lakes was much better than heretofore, and expressed themselves as well pleased with the fishing, and also with the regulations as to fishing as put in force by the Department. The net fishermen have had a fairly good season, but during the fall many of them lost their nets, owing to the heavy west winds.

Overseer Johnson, Harwood, reports that the quantity of Black Bass caught during the season was in excess of the preceding year, but the Maskinonge fishing was not quite so good as in former years, owing to the very rough weather that prevailed during the season, which roiled the water to such an extent that the conditions for Maskinonge fishing were not favorable. Still, he reports a fairly good catch.

The tourists are increasing every year. They were more numerous than in any previous year, and the indications are that the coming seasons will see a great number visit the locality.

He secured five convictions during the year. The close seasons were fairly well observed.

Overseer Labatte, Victoria Harbor, reports that there was a decrease in the catch of the different kinds of fish for the market as compared with that of previous years, the Herring fishing especially being very poor, owing to the rough weather and winter setting in so early. On the other hand, game fishing increased, angling and trolling being very good during the past season, and as a result this district is becoming very popular as a resort for tourists.

Maskinonge are increasing rapidly; a considerable number of good catches of large ones were made during the fall months. There was also a considerable quantity of Bass taken.

As far as could be ascertained, the close seasons were well observed, as no illegal fishing came to his knowledge.

Overseer Lamarsh, Wheatley, reports that there has been a general decrease in all kinds of fish caught except Pike, or Blues, the catch of this variety being practically the same as last year.

The extraordinary early winter, which started about the middle of November, has not been equalled here for twenty odd years, and has been the cause of a great loss and hardship to many of the fishermen, while the decrease in many respects can be attributed partly to the unfavorable season, which was similar to 1902. The fishermen are becoming uneasy at the continual falling off in the catch of Herring, the decrease this year being 90,900 pounds, or actually about one-half the total catch in 1902. Whitefish decreased from 95,429 to 41,698 pounds, Sturgeon from 19,064 to 13,597 pounds, Pickerel from 174,823 to 96,531 pounds, Perch fell from 131,086 to 87,115 pounds, and Catfish decreased 3,450 pounds; mixed and coarse fish show a decrease of 10,207 pounds.

The steady decline in the catch of Herring from a total of 788,616 pounds in 1899 to 93,394 in 1903 should be a cause for reflection on the part of all connected with the fishing interest in any capacity whatever. The general feeling is that unless more stringent measures are taken in the early spring and late in the fall to prevent American poachers trespassing on our shores, which they do sometimes six weeks and two months before the Petrel gets into commission in the spring and after she is laid up in the fall, and unless our Department refuses tug gill net licenses in western Lake Erie, the Herring fishery industry of Lake Erie will be a thing of the past.

A great deal of feeling was aroused among the pound net fishermen on the main shore of Essex and Kent Counties by the action of the gill net tugs from Pelee Island. Some four tugs could be seen at once fishing in the passage between Point Pelee and Pelee Island, and all along the main shore within two and three miles of it. He managed to seize twenty-six nets off Point Pelee about two miles out, and confiscated them. His experience in lifting the confiscated gill net firmly convinces him that it is a most destructive mode of fishing. The most of the fish found in the net were spawn Herring. Fully one-fourth of those caught dropped out before he got them in the boat. He is of the opinion that the interests of the fishing industry would be best secured by prohibiting all fishing from the 20th November till April 1st. Spawning Herring, as well as Whitefish, would be protected, and the fishermen

would benefit by saving fishing gear, of which a great loss occurs every year in these waters.

The various close seasons and prohibitions were well observed.

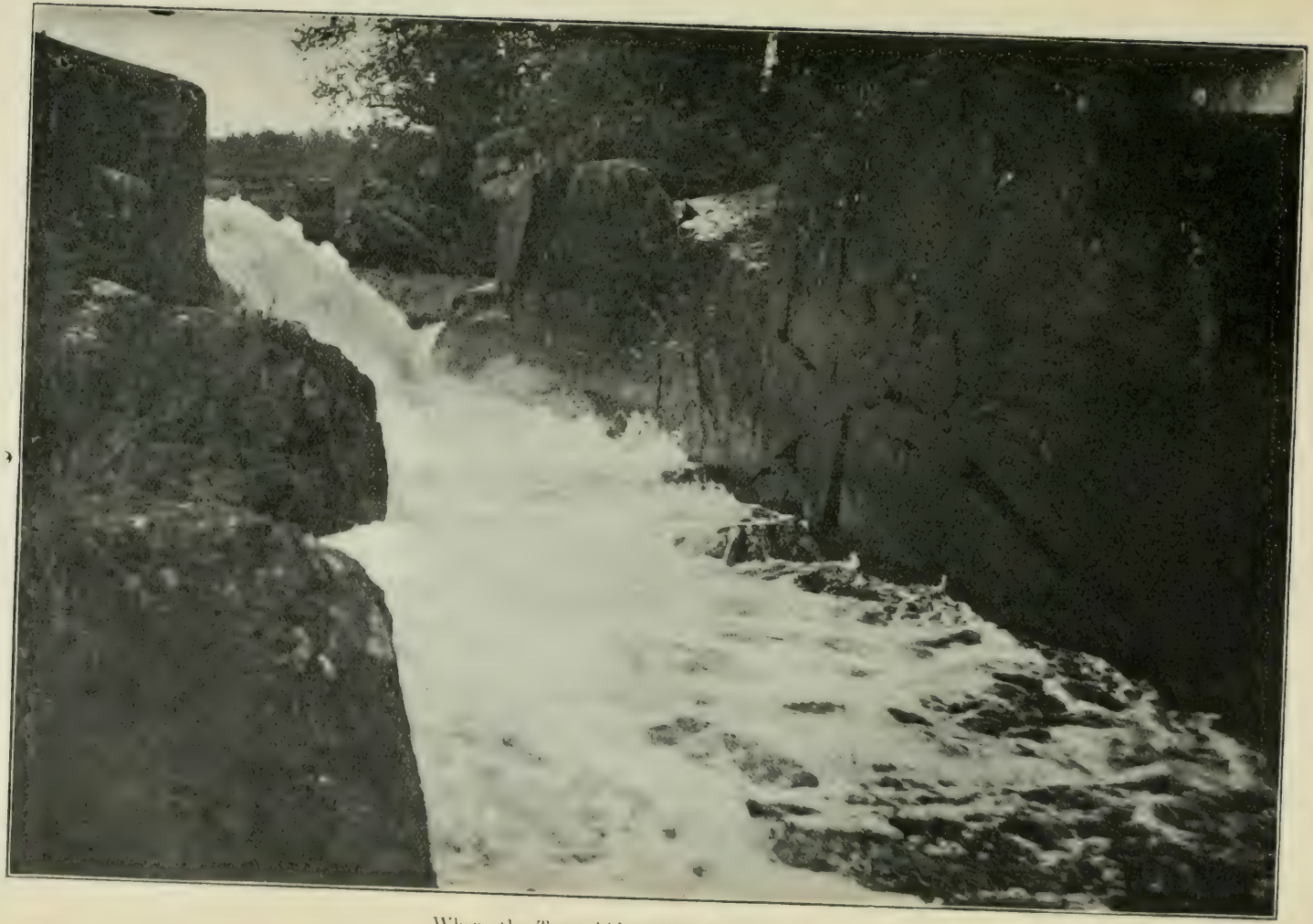
Overseer Laird, Guilds, County Kent, reports that fishing commenced about the first of May. There were no heavy runs of fish during the whole season; in fact, the Herring and Whitefish are steadily decreasing every year. In 1899 there were caught in his division 3,624,130 pounds of Herring and 68,030 pounds of Whitefish; in 1900, 2,771,094 pounds of Herring and 33,449 pounds of Whitefish; in 1901, 2,059,751 pounds of Herring and 52,562 pounds of Whitefish; in 1902, 553,190 pounds of Herring and 29,660 pounds of Whitefish; in 1903, 409,932 pounds of Herring and 22,710 pounds of Whitefish, so that except in 1891, when there was a large increase of Whitefish, these two kinds of fish have been decreasing at an alarming rate, and as the Herring fishery of Lake Erie a few years ago was more valuable than all other kinds of fishing, it should surely set the Government thinking as to what is the cause of this very large decrease. In his opinion there is one, and only one, cause, and that is the wholesale destruction of the Herring and Whitefish with gill nets during the spawning season in the latter part of November and the fore part of December, when these fish are on the reefs. It is a well-known fact that when these fish are heavy with spawn they cannot be caught in pound nets, as they will not follow the lead, but at such times they are an easy mark for the gill net. If there is not better protection provided for these fish in the very near future, it will be of no use to fish the waters of Lake Erie for Herring and Whitefish, in fact, he is almost afraid it is too late now to expect any great amount of Herring to be caught in Lake Erie. However, he would like to see something done to better protect these two valuable kinds of fish, and he thinks it would be worth the experiment to make a close season, say from the 15th of November to the 1st of April, and not to allow any gill netting at any time. He believes it is a great mistake to license gill nets in any waters that can be fished with pound nets: he also believes there are too many pound nets being fished. He thinks that three nets are all that anyone should be allowed to fish.

He is pleased to see that at last some effort is being made to come to some understanding with the border States, so as to have a uniform close season established. If this had been done ten years ago there would not have been such a great decrease in the Herring and Whitefish as has taken place in the last five years. Rond Eau Bay, which was a few years ago a grand sporting water, is not at the present time nearly so good, from what cause he would not like to express a very decided opinion. Of course, he has his own views on the matter. In the first place, he believes the Carp were allowed to secure a very strong foothold before means were taken to exterminate them; but as means are now being employed to rid the bay, or at least to keep these robbers down, he believes with care the waters of Rond Eau Bay can be made a sportsmen's paradise again.

There should be Black Bass planted in these waters, so as to keep up the supply of this game fish; and as they have no Trout or Maskinonge fishing in Rond Eau Bay, something should be done to keep up and protect the game fish that are there. The Eau is becoming more and more every year a resort for summer tourists; in fact, there is no time during the summer season when this popular resort is free of local or foreign tourists. It is the only sporting water in Western Ontario of any size.

The fishermen have observed the close season strictly, but have raised a great deal of objection to the close season on Sturgeon. They think it a hardship to have to throw out these fish, when at that time of year there is always a light catch of all other kinds.

Overseer Legault, Sturgeon Falls, reports that the catch for the past year has been greater than the combined catch of the two previous years, and the fish were of a fine quality. Old experienced fishermen say that with a careful conservation there



Where the Trout hide!—The Matabetchawan.

Paradise Beach—Lake Temagami.

Sharp Rock Outlet—Lake Temagami.

"The Good Old Summer Time."

is abundance of fish in the lake to last for years to come. A few cases of illegal fishing came to his notice; the parties in each case were fined. The fishermen were well pleased with the season's catch. The laws and regulations of the Department were fairly well observed.

Overseer Loveday reports no prosecutions during the year. The public seem to be falling in more and more with the necessity of observing the fishery laws, and co-operating with and assisting the overseer in the enforcement of the laws.

Fishing has been very good on the upper Ottawa, and some very fine fish have been taken on the Rideau River as well, but the lower Ottawa seems to be getting worse every year. There are no Bass of any account, and Pickerel are decreasing. He does not believe it will ever be any better, as there are no spawning beds but what are covered with sawdust.

Ovrseer Menzies, Burk's Falls, reports that he has visited during the year a great number of the lakes and streams in his district, and found that the laws and regulations were observed. The tourists who visited the division found the Bass and Pickerel fishing all that could be desired. There are two lakes between Burk's Falls and Algonquin Park that contain Bass and Pickerel. The remainder are inhabited by Trout, Whitefish, Herring and Suckers.

The millowners all observe the law regarding the dumping of sawdust in the streams. There are no licenses isssued in his division.

Overseer Miller, Wiarton, reports that he visited all the inland lakes and streams in his division, also the bays on Lake Huron. The Bass fishing on the Lake Huron shore and around the islands was not as good as usual. In discussing the matter with fishermen and settlers, a great many reasons for the shortage were advanced. In his opinion the most likely reason is the great abundance of Carp, which in the spring of the year frequent the waters in thousands, just at the time when Bass are on the spawning beds, and devour the spawn. They are very large, and come into the bays in such numbers that they crowd each other out of the water. They are so numerous and large that there is no chance for a smaller fish to exist. He is afraid that they will exterminate all other fish unless some plan is devised for destroying them. In the inland lakes Bass have been plentiful and the angling good. Pike were very numerous. Quite a number of Bass were taken that bore every evidence of having been bitten by Pike; in some cases pieces were bitten clear out. He says all the islands along the shores of Lake Huron have been sold, and the parties purchasing have in many cases built beautiful summer cottages, and if the game fish could be preserved, Wiarton would have one of the finest summer resorts in Ontario. The scenery is unsurpassed, and the place is easy of access, being only a couple of hours' run by boat from Southampton, and eight to twelve miles by land from Wiarton. He finds that the public are very anxious to assist him in enforcing the laws and regulations of the Department. Two cases of illegal fishing came to his notice, and on the whole the different close seasons and other regulations have been well observed.

Overseer Moore, Huntsville, reports that the Black Bass in the lakes there are doing remarkably well. During the past season large numbers were caught by tourists and others, although as a rule those caught were not large in size.

He thinks it would be advisable to have cautionary notices of a permanent nature placed in conspicuous places informing the public as to the season and limits in regard to Bass fishing, as he has found that any violation of the law has been due entirely to ignorance on these points, Bass fishing being an entirely new thing in that neighborhood. Such notices would be required for Vernon, Fairy, Mary and Peninsular Lakes.

Some reports of violations of the fishing laws have come before him, but upon investigation there was no evidence to warrant prosecutions.

There has been no trouble from the owners of sawmills depositing sawdust in the water.

The number of tourists visiting this part of the district is increasing annually, and they tax the accommodation to its utmost, and a great many are building cottages for themselves. No fish is sold for export.

The close seasons are well observed.

Salmon Trout fishing, which fish are caught principally on the troll, in spring and fall, did not appear to be quite so good this year. There is no Maskinonge or Speckled Trout fishing in the above lakes.

Overseer Moore, Lakefield, reports that the catch was not as large as last season, perhaps owing to the coolness of the summer. A great many tourists visited the lakes during the summer, and had fair catches of Bass and Maskinonge. The law has been well observed, both as to close season and the number of fish caught daily by tourists. He suggests that the number of Bass that may be caught by any one person in a day be changed to 6, and 2 Maskinonge, and as in previous reports he again suggests that foreign tourists should pay a small license fee. Most of them that he has talked with express a willingness to pay toward the expense of restocking the waters and better protection of the fish.

He recommends that the use of spears be entirely prohibited. At present they are used to kill Suckers, and as the Maskinonge spawn about the same time the Suckers are running, he is of opinion that a number of Maskinonge are killed at that time.

Overseer Myers, Orchard, reports that the chief fish in his district are Speckled Trout, and the catch this year has been about the same as last year, but there were some larger fish taken than usual. The laws and regulations of the Department were well observed.

No mill refuse is allowed to run in the streams. He pays special attention to this clause of the Act. Most of the waters in his division are under control of fishing clubs. The unanimous wish of the members is that the close season should commence on the 15th August, as a great many trout caught during the latter part of August and the fore part of September are full of spawn.

Overseer McAulay, Southampton, reports that the fishing during the year has been poor, owing to the very rough weather that prevailed. The fish were just as plentiful as last year, but the fishermen could not in many cases get out to lift their nets, consequently great quantities of fish spoiled in the nets. The Bass fishing on the lake shore in Saugeen River has been very good. There is only one fishway in his division, which is in a very good condition. Owing to the rough weather there were 125 nets lost during the season.

Overseer McCall, Vittoria, reports that he finds it hard to base a calculation as to the take of fish, as there were fifteen less pound nets fished this year than during 1902, there being only four pound nets fished fronting the County of Norfolk this year.

There is no doubt there was a great falling off in the Whitefish; fishermen report that the usual quantity did not come on the shore fronting the Townships of Walpole and Rainham, which is the great breeding ground. One pound net fisherman said there was not one fish this year where there were five the previous year.

There would not be five per cent. of fish sold here for home consumption.

The fishery regulations and close seasons were fairly well observed, with the exception of Long Point Bay, where poaching is largely on the increase, and no attention is paid to fishery regulations or close seasons, and every device is used to take fish at all times when possible.

There is no mill refuse allowed to run in the streams. There is one fishway on Nanticoke Creek at the dam, one mile from Lake Erie.

Overseer McComber, Port Arthur, reports that there would have been a much larger catch of fish had it not been for the extremely rough weather on Lake Superior

last fall, before the close season. Quite a number of the men lost their nets, and a few lost their entire fishing outfit, and consequently abandoned the fishing grounds, and did no more fishing during the remainder of the season. It would have been necessary to purchase new outfits, and the time was so short they did not consider it worth while. It is estimated that about fifty per cent. of the catch of fish was shipped to the United States, the balance being shipped to Canadian markets. He has not been informed of any abuses existing during the year. The close season and other regulations of the Department have been well observed. There are no fishways in his division, and no saw mills outside the breakwater. He has always more or less difficulty in getting returns from the fishermen. Most of the men are uneducated, and cannot fill in the forms, and they are all such great distances apart, it takes time to get them in. However, he has been furnished with returns by all the fishermen. It would be a great benefit to have a fish hatchery on the Canadian side of Lake Superior. It could be built at a moderate cost, as there are fine streams suitable for the purpose. He is informed that the fishing industry on the American side, where they have hatcheries, is far superior to the Canadian side. He has lately been informed of a lake two or three miles north of Loon Lake, which is swarming with Bass. If this lake became known it would be a great attraction for tourists. The lake is about 2½ or 3 miles long. It is but a short distance from the C. P. R. line of railway. There is also a lake five or six miles north of Ouimett, on the line of the C.P.R., which is plentifully supplied with Speckled Trout, weighing from two to three pounds. It would be very convenient for tourists, as they would take waggons at Ouimett and drive out to the lake. There is no Maskinonge in that part of the country.

Overseer McKewen, Tehkummah, Manitoulin Island, reports that a great many tourists visited that locality during the year, where they find good accommodation at Manitowaning, Little Current, Gore Bay, and many other smaller places. They spend a great deal of money, and in return get some excellent Bass and Speckled Trout fishing, and in many casese a new lease of life.

The laws and regulations of the Department are well observed. The Manitou Fish Co., who have a lease of Manitou Lake, have not found the fishing as profitable as expected, but they are not discouraged; they are making extensive preparations to stock the lake next spring with White Fish and Salmon Trout by erecting a large and expensive hatchery at the outlet of the lake, and intend to have it in full operation by the opening of spring. The settlers are pleased that their interests were guarded when leasing the lake, by reserving them the right to fish with rod and line for their own use.

Rumors reached him last summer that the company were doing some illegal fishing, but on investigation he found the report to be untrue. Some of the small inland lakes furnish good Bass fishing. The fishing in the North Channel and Lake Huron seems to have been fairly good.

Overseer McKirdy, Nepigon, reports that the revenue received from fishing permits issued was $1,080.00, some $15.00 less than for 1902; the very unfavorable weather during the latter part of June and month of July, made these months very light, otherwise the season would have been a record breaker.

The fishing on the river was fully up to the standard, both in size and quantity, to other years. The river has been well patrolled, and the camps kept in excellent sanitary condition. The opening of two new camping places has helped materially to relieve the congestion during August.

Considerable has been done in clearing out the Pike and Suckers, thousands of these pests having been destroyed, which will, no doubt, have a beneficial effect. He would, however, suggest more radical measures to clear the river of these pests; then indeed we would have a Trout stream to surpass the fondest dreams of the disciples of Walton.

Many of the leading sportsmen who visit the Nepigon annually are very desirous of preserving this stream for fly fishing only, claiming that the various artificial baits are barbarous, and not fit to use for taking the lordly Trout. On the other hand, the bait-fishermen claim that the larger fish do not rise to the fly, in fact if they had to depend on what they caught with the fly, their supply of fish would be extremely small. It is his belief that an expert fly-fisherman can catch more fish than the bait fisherman, and certainly the fly-fisherman has the acme of pleasure.

In proof of the fallacy of the bait-fisherman's contention, he quotes from his record book Mr. Henry Bristol's (New York) record this season :

	Pounds.		Pounds.
1 trout	6	1 trout	5¼
1 trout	7¼	1 trout	5¼
1 trout	6	1 trout	7
1 trout	5½	1 trout	6¼
1 trout	6	—	—
1 trout	5½	10 trout	60

All taken with the fly.

He thinks fishing like this should satisfy any one.

It would add materially to the comfort of the river if the portages were improved by removing the boulders from the paths, making permanent canoe landings, with a portion of them at the ends of the portages.

The Canada Fish Co. have not found winter fishing a success, their catch being a very light one. Summer fishing is the only proper method, and until such time as proper facilities for handling the fish from Lake Nepigon to the station here is secured, nothing of any moment can be done.

The handling of some 200 Trout varying in size from 1 lb. to 6 lb., and transporting the same in the C. P. R. fish car (specially constructed), was a complete success, every fish reaching Rat Portage safely. He thinks the subject of restocking the depleted streams with Brook Trout like those from the Nepigon, cannot be too highly commended, but suggests that by use of a fish hatchery, and keeping the fry until they are a year old, when they will be able to take care of themselves, it could be carried on more cheaply; and with the unlimited supply of spawn that could be procured, every lake and stream in the country could be stocked.

Overseer McRitchie, Bothwell, reports that the catch was an average one. There is a slight increase in the value of the gear used. The close seasons and other regulations of the Department were well observed, no cases of illegal fishing having come to his knowledge.

Overseer Nash, Rat Portage, Lake-of-the-Woods, reports that in comparing the catch of 1903 with that of 1902, a small decrease will be found in 1903, which can be largely accounted for as follows :

Twelve pound nets were fished in 1903, where twenty were fished in 1902. Last summer during what is considered usually to be the very best season for fishing in his district, a severe storm, accompanied with high gales, completely destroyed the pound nets and many of the gill nets, and before new nets could be procured and set the season was practically over. Some licenses were not used at all, while some others were used but little, as the returns will show. Notwithstanding all this, there is seemingly general satisfaction among the fishermen with the catch during the year.

There has been but one important infringement of the law come under his notice, that being the illegal catching of Sturgeon in Rainy River, which same he reported to the Department fully in May last. Seven boxes of Sturgeon were seized, which, on instruction from the Department, were sold to the highest bidder.

His district has been most fortunate in having the inland lakes stocked with two cars of fish : one car of Bass in Long Lake and one of Trout in Berry Lake. The Bass placed in Brooks, Otter and other lakes a few years ago are now in a splendid thriving condition, and many sportsmen the past summer enjoyed an outing there.

With the many pretty lakes they have in that district being stocked with such game fish as Trout and Bass, it is fast becoming a most attractive spot for the tourist.

Then, perhaps, should be noted the extreme likelihood of the Grand Trunk Pacific opening up the large territory north of Rat Portage, which contains many lakes and rivers which, according to the explorers' accounts, are simply teeming with fish, while the forests abound with such game as Moose, Caribou, Deer and Bear, the latter being particularly numerous. It is evident that this district is a most enticing one for the tourist.

He concludes by saying "that the industry is looked upon here as being quite a substantial one, and a large factor in the commercial life of the district."

Overseer Nichols, Hall's Bridge, reports that the quantity of Bass and Maskinonge caught during the season was about the same as last year, but, as the number of tourists was about double, the individual catch, especially of Bass, was correspondingly smaller. Although the fishermen are becoming more expert and have better tackle, and the guides are better acquainted with the fishing grounds, the catches were, as a rule, smaller in number than last year.

This decrease may be accounted for by the rapid lowering of the water levels at the various dams after the spring freshets. In this way millions of Bass and 'Longe spawn are left to die on the shores and in the drowned lands every spring. The spawn is destroyed also by Catfish, Eels, Suckers and other coarse fish. But the greatest cause of decrease is the ever-increasing number of American tourists who come to this locality year after year. Their number has doubled during the last three years, and as new railroad and steamboat lines are being added every year, it is reasonable to expect that the Kawartha Lakes will become more popular, and the number of fishermen will rapidly increase. Thus it is only a matter of a few years when the Black Bass in these waters will be exterminated, and the large revenue derived from the tourist traffic will be lost to the district, unless the waters are re-stocked with Bass.

The close seasons were very well observed, very little illegal fishing being attempted. Several spears and trawling lines were taken, and the offenders dealt with, as mentioned in his monthly reports. The extension of the time prohibiting the sale and barter of Bass and 'Longe has done much to suppress illegal fishing.

The mill owners have taken every precaution to prevent the pollution of the waters by mill refuse.

There are no fishways in this division.

He submits the following recommendations, which he believes would greatly benefit the division under his charge :

The waters should be re-stocked with Black Bass.

The chief lakes of his division are Pigeon, Chemong, Buckhorn, Deer, and Lovesick Lakes, which form a connected chain from Bobycageon to Burleigh Falls, being in part a part of the Trent Valley waterway. On these lakes are situated four large summer resorts, at Bobcaygeon, Chemong, Buckhorn, and Burleigh Falls, which cater to the tourist trade. The hotel registers show a daily average of from fifty to eighty guests at each resort during the summer months. Several steamers are engaged in carrying these people from point to point, and each resort gives employment to from twenty to thirty guides during the season, and altogether these summer visitors leave a great deal of money in this locality. Their number, too, is steadily increasing, having doubled during the last three years. So many fishermen are a heavy drain on the waters, and the Black Bass, which are the chief attraction to the angler, are becoming scarcer year by year. Unless some means are taken to re-stock the waters, this district will soon lose a large and profitable summer trade. These waters, and especially Deer Lake and Deer Bay are admirably adapted for breeding grounds.

The daily maximum catch of Bass should be reduced to eight. This is as many as can be used, and if more are caught they are allowed to spoil in the ice houses and have to be thrown away, or it is a temptation to the guides to sell them.

A small license fee should be imposed on foreigners. If the revenue so derived were expended in re-stocking the waters, it would tend to attract tourists to this locality rather than drive them away.

Overseer Norris, Bolingbrooke, reports that there has been very little net fishing in his division during the year, there being very few lakes where it is worth while setting a net. The angling for Bass and Pickerel in Christie's Lake has been very good; this lake is fast becoming a favorite resort for tourists. There is a very small portion of Bob's Lake in his division, and as far as he can find out, there has been a decrease in the catch compared with that of last year. He thinks this lake is overfished, and that it would be wise to stop all net fishing for a term of four or five years. The laws and regulations of the Department were well observed.

Overseer Norquay, Manitowaning, reports that they have a number of good Brook Trout streams, two of international reputation, the far-famed Blue Jay and Manitou streams. The fishing in these has apparently not deteriorated to any great extent, although there is no doubt a progressive decline owing to the greater fishing, lessened volume of water and poaching (out of season fishing), unknown when the country was unsettled.

The wonder is that any fish are left.

The hand of every man seems to be against the continuance of this species, as they are fished for in and out of season, low water and high, spring, summer, fall and winter, by fair means and foul, and the only period of exemption is the emigratory one when the larger specimens strike for lake water, returning about July in each year. Bass-fishing is most excellent in all the lakes hereabouts, most of these bodies of water containing apparently inexhaustible quantities, still there is danger of depletion, many fishermen not having the fine instinct of sportsmen, but striving, one with the other, for the largest catch, neglecting to "play" their fish and give them that chance for life to which they are justly entitled and which, while increasing the enjoyment, would tend to conserve the supply. A good deal of difference is noticable in the gamey qualities of fish in the different lakes, those in the smaller ones being the best fighters, owing, perhaps, to the greater competition necessary in the gathering of food. The weight of those usually caught is from two to four pounds, with occasionally a heavier specimen.

Bass are taken by line and troll, as also the Salmon, but not as extensively.

We find in Lake Manitou quite a number of large Speckled or half Speckled Trout of excellent quality, up to four pounds in weight, and which seem to be a cross between Salmon and Brook Trout varieties. They are quite red in color and owing to the very deep, cold water seem to thrive in the lake as well as smaller ones do in spring brooks. They are seldom taken by line or trowl, usually in the spring run of suckers, and therefore in bad company. This district is very popular as a summer resort for fishing purposes, and promises to be more so. Lake Manitou has long been the Mecca of good fishermen, and the extensive improvements of the Manitou Fish Co. must extend facilities for the exercise of this noblest of pastimes. The company have in one year made the beginning of what should be a paying and instructive business, and in his opinion should be encouraged to the full extent permissible by the Department. They have erected large dock accommodation, which permits of the safe anchorage, not only of their own fleet, but of that of others, and in addition to their hatchery, which, successful or not, will in experience prove to this Province of inestimable benefit, makes the habitation of the shores of this lake and its exploitation for fishing and tourist purposes possible. They have also built large and commodious boarding houses, ice and cold storage places, and the only bar in the way of their success is the accumulation of Suckers and Eelpouts now in the lake and which must be gotten rid of before their business of Trout breeding will have a chance of success. He has seen tons of Pouts taken at a lift; the lake should be thoroughly, frequently,

and systematically fished so as to exterminate these Pariahs of fishdom. A new field has been discovered at South Bay, for Bass, where they cluster in thousands among the rushes at the head of that bay, three miles from Manitowaning, and an overseer should be appointed at Manitowaning to watch this ground.

Overseer O'Connor, Long Point, County Leeds, reports that the waters over which he has supervision abound in a beauty of scenery and plentitude of game fish that should at once recommend them to be of special interest to the angler and tourist.

Bass, Pike, Whitefish, Salmon and other smaller fish are all to be found and the catch of last season showed somewhat of an increase. The proximity of the waters to such summer resorts as those among the Thousand Islands renders them sure of some attention from tourists.

Herein lies a difficulty. A few genuine sports visit the waters and would scorn to infringe upon the laws, while many others drive back from the St. Lawrence only to stay a couple of days, and while there catch all they can, quite regardless of the law. Then they leave, taking the more choice fish with them and leave the rest to rot on the camp grounds. These fellows, he says, need careful watching. They come and are gone again before he is aware of their presence, and it is only when it is too late that he knows of their work.

On the famous Red Horse Salmon grounds there was hardly a day during all last summer that boats might not be seen on this stretch of water and a good catch of Salmon was reported and most of it was done legally. A few fishermen in camp there were thought to be doing a little illegal fishing at night. Since his appointment as overseer, he has seized two gill nets at that point

Heretofore there has been much illegal fishing for Whitefish during the run in the fall. There are three good rapids in those waters, and the Whitefish playing in large numbers in the shallow waters are rather tempting, but by frequent visits he has greatly reduced this evil. He also captured one net at this place.

A source of grievance to the people of the vicinity is the fact that there are parties doing nothing else all summer but trolling for Pike for market, and if this thing be allowed to continue, in a very few years the lakes will be depleted of one of the finest fish they have. He says the Pike in those waters are different from any others in the lakes about there. They are more like the Maskinonge in shape and color and are game right to the finish. Fish caught and marketed in this way cannot be reported in any way. He knows of one man who marketed a ton of Pike last summer. He thinks some steps should be taken to stop this commercial fishing at once.

There has been no hoopnet fishing in his division for some time, except in South Lake, and he recommends that these licenses be discontinued.

Overseer Ogg, Hamilton, reports that the catch of Whitefish for the year has exceeded that of last year by 4,875 lbs., with two returns not received. The fish have been of an excellent quality, and the prices have been high. Full returns, he thinks, will show a very slight difference, if any, in the catch. All the fish caught are used for home consumption. The season's operations have been satisfactory to the fishermen, the prices of all kinds of fish being very high. Three cases of illegal fishing came to his notice, and in each case a fine of $10 and costs was imposed.

Overseer Oliver, Little Current, reports that there has been a general falling off of the catch in his division compared with the catch of last year. Although the fishing has been lighter the fishermen have done fairly well, owing to the high prices received.

The catch during the ten days' extension of the open season that was granted was very heavy. He strongly deprecates the granting of any extension of the season in November, especially in the west end of Georgian Bay, as by the 10th of November the spawning season for the Trout in that locality is about over, and the first run of the Whitefish has commenced before the expiration of the ten days granted. It simply

means the wholesale slaughter of the spawning fish, especially the Trout. This would apply to the vicinity of Horse Island and South Bay as well as the west end of Georgian Bay. At the Duck Islands in the west end of his division the Trout spawn much earlier, the season being pretty well over by the 5th of November. At Cockburn Island and Meldrum Bay the conditions are about the same. Along the north shore of the north channel the conditions are different, as the catch in that locality consists principally of rough fish, that is to say, Pickerel and other coarse fish, his objection would not hold good then. He reports the Herring fishing at Bad River and Beaverstone in the Georgian Bay and Cutler in the North Channel to have been very good.

The catch in the North Channel in the vicinity of Gore Bay was lighter than usual. The pound net men at Cockburn Island had a good average catch, and at the Duck Islands the catch was fully up to that of last year. In the North Channel in the vicinity of Blind River the catch was less than usual; in the vicinity of Cutler it was about the same as last year, being a fair average catch. The season generally speaking has been a prosperous one for the fishermen, though owing to the very rough weather that prevailed during the month of November a good number of nets were destroyed at the Duck Islands and South Bay, and a few at Killarney and the Bustard Islands.

In referring to the decrease in the catch, he says that in the vicinity of Squaw Islands, Killarney and Bustard Islands, the decrease is owing in his opinion to the waters in that locality being over-fished in past years, and at the present time he believes there are too many nets used there. About 90 per cent. of the catch is exported to the United States, the average price received by the fishermen being about five cents per pound. The remaining 10 per cent. is sold in the local market and shipped to different parts of Canada.

The Bass fishing has been good; in the North Channel he thinks it is the best to be found in Ontario. There is good Maskinonge fishing, and Pickerel are also reported to be plentiful. There are a few Brook Trout streams which have furnished some excellent sport for the anglers.

The North Channel from McGregor Bay to Algoma Mills is becoming a great resort for tourists. There are a large number of both small and large, sailing and stream yachts being used for fishing and pleasure during the Trout season. This valuable trade is increasing every year.

Overseer Paul, Loring, reports that the angling for Bass, Pickerel and Maskinonge in his division has been first-class, but says the Maskinonge are not so plentiful as they were some years ago, owing, he thinks, to so many dams being placed on the rivers by the lumbermen in order to remove their sawlogs. He thinks something should be done to remove these dams, as they were built years ago and have served their purpose, and their usefulness is gone.

The laws and regulations of the Department have been well observed. He would recommend that a free license be granted for domestic purposes, as there are plenty of Whitefish and Herring in the waters and they cannot be taken any other way.

Overseer Rennie, Napanee, reports that the catch for the season was somewhat better than that of last year. All the fish caught were exported to the United States. The close season and other regulations of the Department were well observed; not one case of illegal fishing having come under his notice. A great many tourists visited Hay Bay during the season, lured there by the reports of the magnificent Maskinonge fishing, which, he says, was the best in his memory.

Overseer Robertson, of Hillsburg reports that the laws and regulations in the waters under his supervision were well observed. No fines or arrests were made during the year.

Overseer Roblin, Adolphustown, reports a small increase in the catch over the year 1902. About 90 per cent. of the catch is exported, the remaining 10 per cent. being

used for home consumption. He complains that the anglers destroy a great many minnows for bait, and would recommend that notice be put up to further the protection of same. The fishermen mostly observe the laws and regulations of the Department. Three charges of illegal fishing came to his notice during the year, and a fine was imposed in each case. The Bass fishing continues to improve, and anglers are becoming more numerous every year.

There are no fishways in his division.

Overseer Sargent, Bronte, reports a decrease in the catch of Herring compared with that of last year, but on account of the high prices that prevailed during the year the season's business, was, on the whole, a very favorable one. The bulk of the take was disposed of in the Hamilton and Toronto markets. He is glad to report that the old Ciscoe they had in former years are returning. He noticed in two hauls made by the fishermen (and there were two or three thousand in each haul) that 90 per cent of the total catch were Ciscoes. The fishermen are much pleased that they are returning. He has every reason to believe that they will again be as numerous as in former years. Angling has not been so good in the Twelve and Sixteen Mile Creeks. He thinks this is caused by the abundance of German Carp that frequent these waters, and hopes the Department may devise some means to rid the waters of this noxious fish. The close seasons and other regulations were well observed.

Overseer Shewen, Apsley, reports that there was an increase in the catch of fish for the past year on account of an influx of American tourists. All fish caught were used for home consumption. He visited the different camps and cautioned the parties about catching more fish than they could consume, and the result was that the settlers in the vicinity were given all surplus fish, and none were wasted.

The year before he was appointed overseer he counted over 100 Black Bass lying rotting on the shore of Long Lake, Township of Burleigh, at one camp. He has patrolled his district at different intervals to see that the close season was duly observed.

He had reason to believe that illegal fishing was carried on in October at "Trout Lake," Township Burleigh. He immediately visited the camp and lake, but found no nets.

No damage has been done to fish by dumping mill refuse in the streams. There are no fishways, but he would recommend one to be placed between "Gold Lake" and "Eagle Lake," and another between Eagle and Deer Lakes.

He had a small grant some four years ago to place some parent fish in Loon and Little Wolf Lakes, and is pleased to say that the result has proved satisfactory. The settlers are now catching fair-sized Black Bass.

The Americans, who are now coming more frequently and in greater numbers to this district, have asked "why the Government do not place fish in more of the pretty and numerous lakes which are now devoid of game fish."

There are two lakes, Wolf and Crab Lakes, Township Anstruther, both suitable for Bass, and they certainly ought to be stocked with Bass and Salmon Trout. It might be done at no great expense.

Overseer Skeen, Harwood, reports that the season as a whole has not been as good for Maskinonge fishing as last year, owing in a great extent to the prevalence of very high winds, which kept the water in a condition that was not favorable for trolling, and caused the tourist to seek the more sheltered places and angle with the rod and line for Bass, in which they had excellent results. There was an increase in the number of tourists who visited these waters during the year, and he looks for a much greater number during the coming year, as Rice Lake is fast becoming known far and wide as a sportsman's paradise. The close seasons and other regulations of the Department were well observed. There are no fishways in his district. He is convinced that a lot of spawn is lost annually through the rapid lowering of the water during the spring, and suggests that some means be adopted to overcome this.

Overseer Smith, Charleston, reports that the fishing in his division has been as good as usual. Bass fishing was better than last seaon, larger and more plentiful, many of them weighing four and five pounds. Salmon fishing was good in the months of May, June and July, then not as good the balance of the season, owing to the abundance of natural food in the lake. The Trout have increased in size for the last four or five years, many of them now weighing from ten to twelve pounds.

The close seasons are well observed. There are no fishways in his division; there should be one at the outlet of the lake, as thousands of small Bass come up the stream and lie below the dam trying to get up into the lake all the latter part of the season

This lake is a very popular resort, and the tourists are more numerous every season.

A few cases of illegal fishing have come to his notice; the nets were confiscated whenever found.

The usual amount of Salmon fry was deposited from the Newcastle hatchery in splendid condition.

Overseer Smith, Kemptville, reports that the catch as far as he can ascertain has been about the same as last year. All the fish caught were used for home consumption. The close season and other regulations were well observed, no cases of illegal fishing having come under his notice. There are no fishways in his division.

Overseer Smith, Gravenhurst, reports that the supply of fish in the Muskoka waters during the past season has been quite equal to any of former years. Anglers have been very successful, and although the two licensees have not had such large catches as in former years, it is owing to the fact that through several causes they have not pursued the fishing as energetically as formerly, in fact, the latter part of the season was so rough that scarcely any fishing was done by them. He has given careful attention to the observance of the close seasons and to illegal netting, and is able to report that the law is well observed. He has experienced more difficulty as to the size of the fish caught, and in one case had the person in possession of such fish fined, as reported to the Department at the time. All fish caught are sold for home consumption, and none are sent to any outside market

The close seasons are well observed, and all mill refuse is disposed of without being placed in the water.

He has had reports of illegal netting, but upon investigation said reports were proved to be unfounded.

The greatest enemies of our game fish are the large numbers of coarse fish (principally Suckers and Ling), which are in the waters. The game fishing in this district is improving, owing in a great measure to the efforts made to restock the waters, and the district has been for a long time and is becoming more and more a popular resort for tourists and anglers.

Overseer Steel, Uptergrove, Lake Simcoe, reports that the Bass fishing in the waters under his supervision has been good, there having been some exceptionally fine catches made, the fish being large and in splendid condition. The season could not be called a favorable one from the anglers' and tourists' point of view, owing to the very rough weather that prevailed throughout a greater portion of the season. Had the weather been more favorable, no doubt there would have been a much larger catch. There are six summer resorts in his division, and numerous cottages for the accommodation of tourists, and they were all well patronized. He thinks he is safe in saying that in Lakes Simcoe and Couchiching Bass and Maskinonge fishing cannot be excelled in the whole of Canada. The fish are large, gamey, and of a delicious flavor. He has been told by a number of tourists during the past year, sportsmen who have fished all over America, that the above-mentioned lakes provide the finest Bass fishing they have found anywhere. It is only a question of time till these waters become celebrated throughout the whole United States as furnishing the finest Bass and Maskinonge

fishing to be found on the North American Continent. The Maskinonge fishing this year has been better than in previous years, and the fish were of a larger size. It is quite apparent that they are increasing rapidly. There are no Speckled Trout in his division, but Lake Simcoe contains very fine Lake Trout, and these are increasing every year. The lake also contains an abundance of Whitefish and Herring. The catch of Pickerel, he says, was fully up to that of last year. He would recommend that the close season be made from the 1st of April, instead of the 15th of April, as at present, as the Pickerel begin to run in the latter part of March. Carp are becoming very numerous in the lake. He says the laws and regulations are well observed.

Overseer Stephens, Chatham, reports that there has been a small decrease in the number of fish taken in this district, owing to the ice remaining in Lake St. Clair until so late in the spring, and no extension of the fishing season being granted. In the latter part of the year the catch was good, and prices very high, and the revenue received by the fishermen was an increase over last year. About 95 per cent. of the fish are exported to the United States, and about 5 per cent. are used for home consumption. The close season was very well observed, only one case of illegal fishing having come to his notice. Two hoopnets were confiscated. There is only one sawmill in his division; no sawdust or other refuse is thrown into the river. There are no fishways, and none are necessary.

Overseer Steed, Sarnia, reports a still greater decrease in this season's catch when compared with 1902. Several reasons may be mentioned therefor. The natural location of Lake Huron beach, combined with heavy weather, makes the results of the north and west winds very disastrous to all pound nets. Add to this the immense number of logs (brought down by the mill companies of Sarnia Bay) enclosed by a single boom log, and in some cases held by tugs just outside the pound nets; these are certain to cause trouble during heavy weather to all nets on the shore. New York is the principal market, and during the past season prices have been such as to help recompense the fishermen for the decreased catch. The close season for Pickerel was not perfectly observed. The Port Huron customs receipts for April 27th showed two entries of Pickerel, but it was impossible to trace these. On the 29th of April it was reported that our fishermen were selling to a fish dealer in Port Huron; when interviewed he pledged his word that he had bought no Pickerel since close season opened. On May 6th (when accompanied by Chief Sarvis and Detective Murray) seven arrests were made for illegal fishing. Three of these were dismissed; two found guilty, sentence suspended; one found guilty, paid costs; one found guilty, and fined $10 and costs. Two more were convicted on May 10th for selling Pickerel in close season, and a fine of $1.50 and costs imposed upon each. Word was next received that one of our own fishermen was fishing illegally at Port Lambton. This was found to be the case, and a fine of $10 was imposed. Two more convictions were made in June for selling Sturgeon under four feet long, and a fine of $1.50 each imposed. The fishway in his district (on River Sydenham) might be improved, having suffered from the floods of June.

Overseer Neil Stewart, Chesley, reports that Trout have been more plentiful in his district this year. Whitefish is a thing of the past, none having been caught. The catch of Herring has not been as good as last year, the weather being so stormy at the end of the season that the fishermen could not get out to lift their nets. All the nets that they put out after the close season was extended were lost, with the fish that were in them. There are no game fish of any account in his district, except a few Bass in the Saugeen River. A few Speckled Trout were caught in the north branch of the Saugeen River this summer. All the fish caught in his district were sold in Canada, probably one-third used for home consumption.

The close season has been strictly observed. No illegal fishing came to his knowledge.

No sawdust or mill refuse is allowed to go in the rivers.

There is one fishway, which was repaired by the Dominion Government last year.

Overseer Stewart, Pelee Island, reports that the complaint is general among the fishermen that the season has been a poor one. The spring and early summer catch was very fair, but the fall fishing was very light, stormy weather very much interfering with the operations of the fishermen. Some who continued their operations late in the season nearly lost their outfits, and several sets of stakes were lost. While several more pound net licenses were issued than in former years, the catch of fish has not increased accordingly; a comparison with the returns of the year 1902 shows a large decrease in Herring, Pike and Perch, while the catch of Whitefish in 1903 was more than twice as much as that of 1902, and a large increase in the catch of coarse and mixed fish. The depression in the business was improved, however, by the good prices paid. The demand for fish was very active, several fish companies making bids for the same. Practically all fish caught are exported. For this reason he has great difficulty in getting early returns from the fishermen, as they depend on the buyers to keep account, and do not settle until the close of the fishing.

Angling during the season was very good, and the number of persons domiciling for that purpose were more numerous than formerly. Permits issued also show an increase.

No fishing is done during the winter months.

The close seasons and laws generally were fairly well observed.

He made frequent examinations of the fish caught. He also went aboard the steamer "Louise" (engaged in carrying fish from this place to Sandusky), and examined the books of the company. He was kindly received, and every opportunity afforded him for information.

During the Herring gill net fishing the Ohio State Fish Hatchery and Fish Commission had men here for the purpose of taking spawn. The weather, however, was unfavorable for the gill net fishing this year, and the quantity of spawn obtained not what was expected.

During the early part of the season, in fact, as soon as the lake was clear to the eastward, American tugs came close to the island and set gill nets. No means were available here for getting after them, as the south bay was full of ice. Some persons did, however, go out in a row boat, and picked up some of the nets. These nets were afterwards turned over to the Captain of the D. G. steamer "Petrel." About the last patrol this steamer made, some nets were found to the westward of Pelee Island among the islands there, and were confiscated. These are the only incursions by the Americans known to him in that district.

In conclusion, he says that general satisfaction is expressed not only with the fishing laws, but with the manner in which they are administered.

Overseer Taylor, Westmeath, reports that the season just closed has been a very successful one. All the anglers who delight in Bass fishing are very much pleased with the season's sport. The many rapids in the river in that locality afford the best all round fishing to be found anywhere on the Ottawa, and the scenery cannot be excelled in Canada.

Whitefish are to be found in very large quantities all along the river. The close seasons were well observed, very little, if any, illegalities having come to his notice. He estimates the catch at about 30,000 pounds, all of which is used for home consumption. This is an increase over any former year. All kinds of coarse fish seem to be increasing rapidly, while Pike and Bass are not so numerous as formerly. He draws attention to the matter of fishways, which he thinks should be in every dam, to allow the fish to ascend to their favorite spawning grounds.

Overseer Terry, Queensville, reports that during last winter the Whitefish furnished good sport for the residents along the east shore. In past years very few of these

fish have been caught, as it was generally believed that they could be taken only with a net or spear, and these implements of capture were prohibited. Now it has been discovered that these fish take baited hooks readily if they are lying on the bottom. The fish are plentiful, and many were caught in this way. Larger Lake Trout have been caught by trolling this season than formerly. The Bass fishing was not so good, but some fine catches were made. The fish taken were somewhat smaller than usual.

The number of summer residents and tourists are becoming greater each year; all available places in boarding houses and cottages were taken, many finding comfortable quarters in the farm houses near the water. The number of summer visitors seemed limited only by the accommodation to be had. The beauty of the lake, good fishing, pure air, proximity to Toronto, and easy railway communication, account fully for the great numbers seeking rest and recreation here.

More cottages are being built and more room provided in boarding houses. How the fishing will hold out against this ever-increasing number of lines remains to be seen. Artificial preservation of the spawn of some of the best game fish seems to be the great remedy.

The trolling for Maskinonge has afforded excellent sport this year, some very large fish having been taken, while many lost baits and broken lines attesting the heavy tugs of these lusty fellows. Some of the fish taken weighed over thirty pounds. The great number of large fish is a very pleasing indication.

There are comparatively few streams flowing into Lake Simcoe that afford any fishing for Speckled Trout. Near the sources of some of those streams flowing south from the Ridges few fish are now found where years ago they were plentiful. Two mill ponds on these streams have been stocked by companies, and the fish have afforded good sport. There are several streams in the Township of Whitechurch which by a small expenditure could be made into excellent preserves for Trout. It is only in the upper portions of these waters that these fish can live.

It is with the greatest satisfaction that the sportsmen of this vicinity see that the wild rice is re-appearing in different parts of Cook's Bay. An unusual number of ducks found here a resting place on their way south this fall. If the growth of rice continues to improve, there will no doubt be as good shooting here as formerly.

Overseer Trotter, Bobcaygeon, reports that the season just closed has been a poor one, in fact, the worst he has seen in years. The lake opened early, but the weather was so rough and stormy until the middle of July that the tourists did not care to venture out. This, he thinks, accounts for the shortage in the catch. The catch of Maskinonge is estimated at 10,000 pounds, of Bass at 5,000 pounds. A great many tourists from the United States and Canada visited the district during the season, and say there would be a great many more if there was better hotel accommodation. Twenty-eight men were engaged by the tourists as guides. We call attention to the need of a proper fish slide in the Government dam, the present one being practically of no use, as the fish from the lower lake cannot make the ascent. The laws and regulations have been well observed.

Overseer Van Norman, Sault Ste. Marie, reports that it has been a prosperous and profitable year for the fishermen; that there is an increase in the catch of Whitefish, and that Trout and other fish will about compare with last season's catch, except Sturgeon, which shows a decided decrease, owing to the change in the close season. Nearly all the fish are exported to the United States; very few are sold in Canada. There were a few illegal nets in the vicinity of St. Joseph's Island. He thinks about three trap nets were set there. He seized one, and destroyed it, but could not locate the other nets or the offending parties. They were taken to the American side. No other abuses of the regulations came to his notice, and the several close seasons were well observed. There are no fishways in his division, and he is not aware of any injury being done by millowners allowing sawdust and other refuse to be dumped into the waters.

Overseer Walker, Port Credit, reports that the laws and regulations have been well observed. There has been a falling off in the catch by anglers, owing, he thinks, to the Carp becoming so numerous in the waters heretofore frequented by game fish.

Overseer Walsh, Carleton Place, reports that the year just ended has been a successful one for good fishing in his locality. The Pike, which are the most numerous, have been caught in large quantities, one man alone having caught 25 good-sized fish in one day. The Bass do not seem to propagate as fast in the Mississippi Lake as he thinks desirable. The only reason given for this is that a few years ago a dam at Innisville, about one mile from the head of the lake, broke away in the spring at the time the Bass would be looking up stream, and it is supposed that hundreds of them took advantage of the opening and went farther up and out of the lake. The fact that Bass became more numerous up above about that time strengthens this supposition. Another reason is that the Catfish have increased right near the mouth of the river not far from where some of the best catches of Bass occur. He is also of the opinion that they destroy the spawn and small fry. For this reason he granted a license to four hoop nets, and intended the fisherman to push his trade vigorously this winter against the Catfish, which he is doing, in the hope that it will lessen the destruction. He has lifted quite a few Suckers, but he does not know if they affect the Bass.

The close season is very well observed. As he is on the lake more or less nearly every day canoeing, he is in a position to know. The fisherman states that he has seen very few Pike, and only two small Bass, so it is evident that Catfish abound where the others spawn. About nine miles down the river from the lake there are falls, and he does not think it possible for fish to mount them. Pickerel come up from the Ottawa, and have been caught right up to the falls, but he has never heard of one being caught above the falls.

An inspection of the place will be made in the spring to see if it is possible to build slides to assist the fish, as it would be quite an addition to the lakes here if the Pickerel could get into them, as he is certain they would do well.

This lake is quite a resort, a large four-storied hotel being built within three miles of the town; there are also about a dozen cottages in the same vicinity. The hotel has been fully occupied every season since it was built, and hundreds visit the park, which is one of the finest natural resorts he has ever seen. A perfect half-mile race track is built around the hotel, where the speedy ones from the town try themselves. The Northern Division meet of the American Canoe Association was held in front of the park in 1902. You can catch a Pike any time you wish within 100 yards of the hotel. On one side of the lake for six or seven miles the wild rice grows very thick, and hundreds of duck of different species fly here to breed and feed. Owing to the fact that there is no one here to look after them, they are shot at as soon as they arrive. In this way the shooting is spoiled for the opening of the season. Still, hundreds of them are shot. A more vigorous enforcement of the game law would make this one of the finest duck resorts in the country. Whitefish and Trout have been planted in the lake at different times, but were never heard of afterwards. There were some fish placed in the river near Almonte last year, but as it was done without the knowledge of the overseer he is not in a position to say anything about them. One net was seized in the lake last fall, and as it is not a safe place to set them, there is not much of it done.

Overseer Waddell, Leith, reports that there has been a decrease in the catch, owing to the very rough weather that prevailed during a great part of the season. The fish were as plentiful as in former years, but the fishermen in many cases were not able to get out to lift their nets. There were a great many nets lost on that account. The close seasons and other regulations were well observed. He reports that the trolling at Point William was all that could be desired. One party from Owen Sound caught seventy-one Trout in one day, and there were

many others who caught over sixty in one day. About 50 per cent. of the entire catch is shipped to the United States market, the remainder being used for home consumption.

There were quite a number of tourists who spent the summer or a portion of it at King's Park and Leith, and he is pleased to say the number is increasing from year to year.

Overseer Wensley, Wensley P.O., Addington, reports that the catch of fish in his divison was about the same as last year, and that all were used for home consumption. He would recommend that licenses for domestic purposes be granted in all the lakes in his division, and that the fee be raised from $1 to $2. He also recommends that the close season for Salmon Trout be changed to commence on the 15th of October and close on the 15th of November. The several close seasons were well observed. Only one case of illegal fishing came to his notice, for which the offender was fined $5 and costs. There are no fishways in his division.

Overseer Willis, Port Whitby, reports that the season was scarcely as good as last year, owing chiefly to the high winds and rough weather that prevailed early in the fall, very little fishing being done after September the first. The size of the fish taken was better than last year, especially Herring and what are called Cross Whitefish.

There were no violations of the laws, and the close seasons were well observed. The angling in Whitby and Pickering harbors was never better, both Pike and Perch being caught in large numbers. The fish were all sold locally or shipped to Toronto.

He strongly recommends that the present custom of giving any license holder the exclusive right to fish on any particular ground be discontinued, and that all licenses should be issued to fish in the front of the township in which they are held, as all the fishermen use one of the harbors, viz., Pickering, Whitby or Oshawa.

Overseer Willmott, Beaumaris, reports that during the past season angling has proved about equal to that of previous seasons. He has noticed that in many instances the run of Bass taken in the Muskoka waters has been longer than for many years past.

The past season was again a most successful one in the planting of adult Bass, which were brought from Lake Erie, a very small loss having been sustained whilst the fish were in transit.

He is of the opinion that many fish planted in the waters in the vicinity of Huntsville have found their way down stream, as Bass have been caught in places along the river (North Branch) where they were never previously known to exist. This also applies to the Madawaska River, where Bass have been caught, and which no doubt have found their way from lakes in the Algonquin Park, in which Bass have been planted. The Muskoka lakes are teeming with small Bass, which, had they an opportunity of growing after reaching the lawful limit, would in a few years give as good angling results as those of many years ago.

Settlers claim that they should have the privilege of netting Herring in the month of November. He sees no objection to this, as these fish would then be in such portions of the lake as to preclude the probability of catching other classes of fish.

Many hotel proprietors have written him requesting him to forward them abstracts from the Fisheries Act. He would respectfully suggest the advisability of having curtailed extracts of the most important sections printed on good, strong cardboard, and copies sent to each postoffice and railway station. It is only right to keep the public informed of the Act as it now is, and also of any changes which may be made.

Overseer Wood, Toronto, reports that there is not much change from the situation last year. In all probability the catch would have been much larger had not adverse winds and stormy weather prevailed during a good part of the season. He is pleased to be able to report the appearance again of the Ciscoe Herring, and some of the best informed of the fishermen are of the opinion that this valuable fish will soon be taken in large numbers in the waters.

The close season was well observed during the year. In one instance a fine was imposed, and two small nets placed in prohibited waters were seized.

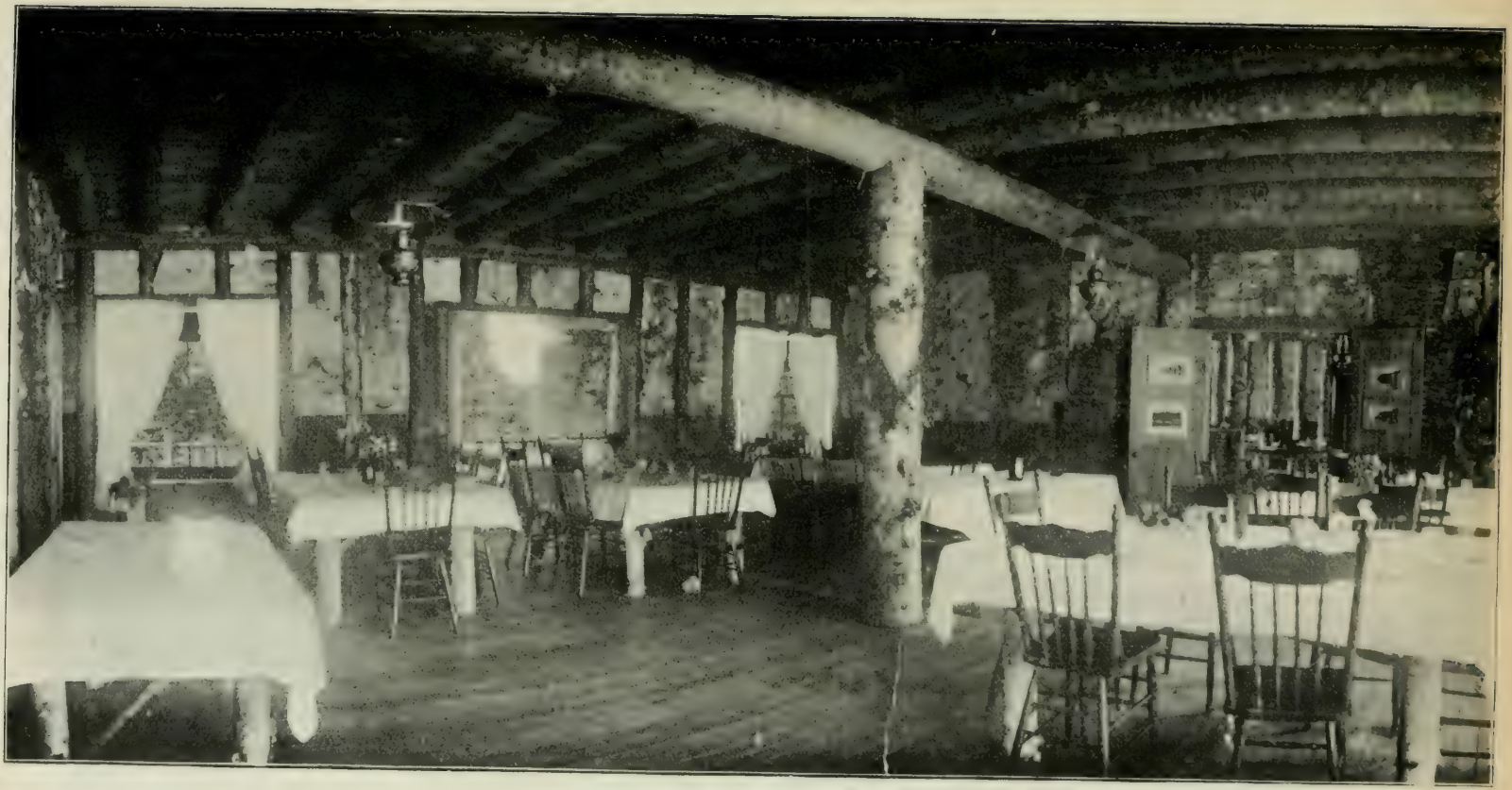
He frequently examined packages of fish received by the express companies, but never found any illegal shipments, and in all cases where protected fish were exposed for sale satisfactory explanations could be shown by the vendors that the fish were legally obtained.

Overseer Yates, Goderich, reports that the catch for the season was fairly good. He cannot say that there was much improvement over last year. The close season was well observed, and for that reason there was same good Bass fishing at Goderich at the mouth of the River Maitland, and up the river from Goderich to Wingham. There was a new fishway put in the dam at Auburn this season. The catch of Perch and Herring by hook and line fishing at Goderich, Bayfield, and Port Albert was large. He has had no complaints as to sawdust, and on the whole he thinks the law has been well observed, no report having reached him to the contrary.

Overseer Yelland, Peterboro', reports that the angling was exceptionally good during the past season, the catch being equal to, if not greater than, the previous year. Two cases of illegal fishing came to his notice, and the parties were fined in each case, which was a warning to others to refrain from breaking the law. He confiscated several nets, which were destroyed.

He is of the opinion that if the water could be regulated so that it would not rise and fall during the spawning season there would be no need of re-stocking the waters, as the spawn deposited would hatch and mature, which would give ample fishing for all who cared to fish. He recommends that steps be taken to exterminate the Catfish that are becoming so plentiful, and are so destructive on the spawn of Bass and Maskinonge, and suggests that hoop net licenses be granted to be fished under the surveillance of an overseer.

The law regarding the running of sawdust in the streams has been well observed.



Dining Room, Bon Echo Inn. (Lake Massanoga.)

Lake Massanoga—Frontenac Co.

On Lake Opinicon. (Rideau.)

A Morning's Catch. (Rideau.)

Lords of the Big Rideau.

ANGLING WATERS.

County of Addington—Overseer, P. J. Wensley, Wensley.

Weslamacoon, Otter, Thirty Island, Wolf, Michanog, White, Brule, Fortune, McKay, Schooner, and Buckshot Lakes—Speckled and Salmon Trout.

Loon Lake—Speckled Trout.

C.P.R. to Levant Station, then by team along Government road to Eagle Hill, about two miles from Weslamacoon Lake. Camp out.

District of Algoma—Overseer, R. M. VanNorman, Sault Ste. Marie.

Blind River—Bass.

Thessalon River—Speckled Trout.

Echo River—Maskinonge, Pickerel, Bass and Trout.

C.P.R. or steamboat. Camp.

Goulais, Batchewana, Montreal, Agawa, Michipicoten, Dog, and Sand Rivers, and Michipicoten Island—Speckled Trout.

Steamboat. Good hotels.

District of Algoma—Overseer, J. Whalen, Port Arthur.

Silver Lake, Mackenzie River, Loon Lake, Blend River, Corbit River, Carp River, and Six Mile Creek—Speckled Trout.

C.P.R. to Port Arthur. Hotels.

District of Algoma—Overseer, A. McComber, Port Arthur.

Steele River—Speckled Trout.

C.P.R. to Jackfish Station. Camp.

Loon Lake—Speckled Trout and Bass.

C.P.R. Camp.

Brockville—Henry Mathen, District Overseer.

St. Lawrence River—Bass and Maskinonge.

G.T.R. or steamboat to Brockville. Hotel accommodation.

County of Brant—Overseer, Henry Johnson, Brantford.

Grand River—Black Bass and Pickerel.

G.T.R. and T.H. & B. to Brantford.

Scotland and Mount Pleasant Ponds—Speckled Trout.

G.T.R. and T.H. & B. Hotel accommodation.

County of Bruce—Overseer, M. A. Macaulay, Southampton.

Saugeen River—Bass.

G.T.R. to Southampton.

Ghegheto's Islands—Bass.

G.T.R. to Wiarton, and stage from there. Camp.

Pike Bay, Stokes Bay, and Greenough's Harbor—Bass.

G.T.R. to Southampton, and stage from there. Camping.

County of Bruce—Overseer, B. B. Miller, Wiarton.

Miller, Emmet, Cameron, and Cyprus Lakes—Good Bass fishing.

G.T.R. to Wiarton. Farmhouses or camp.

County of Carleton—Overseer, E. T. Doveady, Ottawa.

Ottawa River and Rideau River—Bass, Maskinonge, and Pickerel.

C.P.R. to Ottawa, then by steamer. Hotels or farmhouses, or camping out.

COUNTIES DURHAM AND VICTORIA—Overseer, N. Brady, Lindsay.

Scugog Lake and River, and Pigeon Lake, and Pigeon Creek—Bass and Maskinonge.
G.T.R. to Port Perry. Excellent hotel accommodation.

COUNTY OF FRONTENAC—Overseer, John Driscoll, Howe Island.

St. Lawrence River—Bass, Maskinonge and Pickerel.
G.T.R. to Kingston. Hotels and boarding houses.

COUNTY OF FRONTENAC—Overseer, D. Cattenach, Wolfe Island.

St. Lawrence River—Black Bass and Maskinonge.
G.T.R. to Kingston. Hotels.

COUNTY OF FRONTENAC—Overseer, William Craig, Glenburnie.

Crow Lake, Bob's Lake, and Green Bay—Bass, Pickerel, Pike, and Lake Trout.
K. & P. Railway.
Long Lake and Fourteen Island Lake—Bass, Pickerel, and Pike.
K. & P. Railway.
Desert, Birch, Canoe, Knowlton, Gould, Devil, Clear, and Buck Lakes—Bass and Salmon Trout.
K. & P. Railway.
Sydenham, Long, Eel, Cronk, and Bass Lakes—Bass and Pike.
K. & P. Railway. Cottages and summer hotels. Camp.

COUNTY OF FRONTENAC—Overseer, George Clyde, Cataraqui.

Dog Lake—Salmon Trout and Black Bass.
Boat through Rideau Canal. Hotels.
Cranberry Lake—Bass.
Boat through Rideau Canal. Farmhouses.
Buck Lake—Salmon Trout.
Boat through Rideau Canal. Farmhouses.
Loughboro' Lake—Bass and Salmon Trout.
Boat through Rideau Canal. Good hotel at Battersea.
River St. Lawrence—Black Bass.
Hotels at Kingston, and farmhouses.
Upper and Lower Rock Lakes—Speckled Trout.

Boat through Rideau Canal. Hotels.

COUNTY OF GREY—Overseer, Adam Waddell, Leith.

Owen Sound Bay—Salmon Trout.
C. P. R. to Owen Sound. Hotel accommodation.

COUNTY OF HALDIMAND—Overseer, A. Couper, Dunnville.

The outlet of the Grand River, and Lake Erie—Black Bass, Pike, Yellow Pickerel and Maskinonge.
G.T.R. to Dunnville, Port Maitland and Cayuga. Hotels and farmhouses.

COUNTY OF HALDIMAND—Overseer, John Farrell, Cayuga.

Grand River and Lake Erie—Bass and Maskinonge.
G.T.R. and Michigan Central. Hotels.

County of Hastings—District Overseer, J. K. McCargar, Belleville.

Trent River—Bass and Maskinonge.
G.T.R. to Campbellford. Hotels.
Crow Bay—Pickerel and Maskinonge.
Reached from Campbellford. Hotels and camp.
Trent Bridge to Hastings, and west to Rice Lake—Bass and Maskinonge.
G.T.R. Hotels at Hastings. Camp.
Crow Lake—Bass and Maskinonge.
C.O. Railway to Marmora Village. Hotels.
Trout, Devil, and Dark Lakes—Lake Trout.
C.O. Railway to Stola Station. Hotel. Camp.
Weslamacoom, and Eagle Lakes—Speckled and Lake Trout.
G.T.R to Bancroft, and by stage. Hotel. Camp.
Eagun Creek—Speckled Trout.
A few miles from Bancroft.
Papineau River, and Lake St. Peter—Speckled Trout.
Seven miles north of Maynooth. Stage.
Springbrook, near Stirling—Speckled Trout.
C.O. Railway. Hotel.

County of Halton—Overseer, William Sargent, Bronte.

Twelve and Sixteen Mile Creek—Black Bass.
G.T.R. to Bronte. Hotel accommodation.

County of Huron—Overseer, James Yates, Goderich.

Nine Mile River and Maitland River—Perch and Black Bass.
G.T.R. to Goderich. Good hotel and cottage accommodation.

County of Lambton—Overseer, James Steed, Sarnia.

Aux Sauble River at Port Frank—Bass, Perch, Pike and Maskinonge.
G.T.R. to Forest or Thedford, then stage. Hotel accommodation.
St. Clair River—Pickerel.
G.T.R. to Sarnia and Port Lambton. Hotel accommodation.

County of Lanark—Overseer, W. J. Welsh, Carleton Place.

Mississippi Lake and River—Black Bass, Pike, and Perch.
C.P.R. to Carleton Place. Hotel accommodation.

County of Lanark—Overseer, D. Mair, Lanark.

Mississippi River, Clyde River and Trout Lake—Bass.
Cameron Lake and Trout Lake—Bass.
C. P. R. to Perth. Hotels and Camp.

County of Lanark—Overseer, T. B. Norris, Bolingbroke.

Christie's Lake—Bass and Pickerel.
C. P. R. to Perth. Hotels.

County of Lambton—Overseer, Orlando Allan, Wallaceburg.

Syne River—Black Bass, Silver Bass, Pickerel, Pike, and Perch.
G.T.R. to Wallaceburg. Good Hotels.

County of Lennox—Overseer, W. D. Roblin, Adolphustown.

Bay of Quinte—Bass and Maskinonge.
G. T. R. to Belleville, Kingston and Picton. Hotels.

County of Lennox—Overseer, John Rennie, Napanee.

Hay Bay—Bass and Maskinonge.
G. T. R. from Napanee or Deseronto. Hotels.

County of Leeds—Overseer, Chas. O'Connor, Long Point.

Singleton, Long, Higgleton and Lively Lakes—Bass and Salmon.
G.T.R. and Brockville & Westport Railway to Lyndhurst. Farmhouses.

County of Leeds—Overseer, J. R. Gibson, Mallorytown.

St. Lawrence River—Bass, Pike and Maskinonge.
G. T. R., C. P. R., Vermont Central, N. Y. Central & Hudson River Hotels.
Charleston Lake—Bass and Trout.
B. & W. from Brockville. Hotels.

County of Leeds—O. V. Goulette, Gananoque.

St. Lawrence River—Bass, Maskinonge and Pickerel.
G. T. R. Hotels.

County of Leeds—Overseer, Geo. Bilton, Newboro'.

Upper Rideau, Wolf, Sand, Mud, Loon, Mosquito, Benson, Clear, Indian, and Opinicon Lakes—Bass, large and small mouthed.
Beverley, Hard, Rock and Devil Lakes—Bass.
G. T. R. and Brockville & Westport Railway, and by steamers "Rideau Queen" and "Rideau King" from Kingston, or C.P.R. to Smith's Falls. Hotels at Portland, Westport, Jones Falls, Chaffey's Locks and Newboro. Camp.

County of Leeds—Overseer, J. B. Smith, Charleston.

Charleston Lake—Bass and Salmon Trout.
G. T. R. to Brockville, and Westport Railway to Athens, then by stage to Charleston. Good hotel accommodation. Camp.

County of Lincoln—Overseer, R. W. Hadgraft, Port Dalhousie.

Niagara River—Pickerel and Perch.
From Toronto by boat, or G. T. R. at Niagara Falls. Hotels.
Lake Ontario, at Port Dalhousie—Perch.
By boat or G. T. R. to Port Dalhousie. Hotels.

Manitoulin Island—Overseer, Richard Oliver, Little Current.

North Shore of the North Channel of Georgian Bay—Bass and Maskinonge.
C. P. R. to Killarney, and steamer.
LaCloche Island Lake—Bass
Stage from Little Current.
Nellie Lake, Long Lake and Charlton Lake—Bass and Maskinonge.
There is good fishing all the way up the north shore, but no hotel accommodation until Algoma Mills is reached, 40 miles west of Little Current. Camp.

Manitou Lake on Manitoulin Island—Good Bass fishing, and Speckled Trout fishing in Blue Jay River.
C. P. R. to Killarney, and steamer.

MANITOULIN ISLAND—Overseer, T. Norquay, Manitowaning.

Hiawatha, Manitou and Lily Lakes—Trout, Bass and Pike.
Manitou River and Blue Jay River—Speckled Trout.
Drive from Manitowaning. Camp.

DISTRICT OF MUSKOKA—Overseer, H. Moore, Huntsville.

Lakes Mary, Fairy, Vernon, Peninsular, Hollow and Lake of Bays; also Muskoka River and East River—Black Bass fishing.
G. T. R. to Huntsville, then by steamboat.
Trout fishing in Lake of Bays and Hollow Lake and tributaries.
Salmon Trout fishing in season.
Hotel and farmhouse accommodation. Camp.

DISTRICT OF MUSKOKA—Overseer, J. H. Willmott, Beaumaris.

Sparrow Lake—Bass and Maskinonge.
G. T. R. to Severn River. Hotels and boarding houses.
Lakes in the Township of Wood—Bass principally.
Steamboat from Gravenhurst or Bracebridge to Bala. Camp.
Moon River—Bass, Pickerel and Maskinonge.
Steamboat from Gravenhurst or Bracebridge to Bala. Camp.
Musquosh River—Bass, Pickerel and Maskinonge.
Steamboat. Camp.
Big Wind Lake—Speckled Trout.
Drive from Bracebridge. Settlers' houses or camp.
Pine Lake—Large Speckled Trout.
Drive from Bracebridge. Settlers' houses or camp.
Trading Lake—Lake Trout and Speckled Trout
G. T. R. to Huntsville. Hotels.
Lake of Bays—Speckled Trout and Lake Trout.
G.T.R. to Huntsville. Hotels, settlers' houses, or camp.
Lakes in Tp. of Freeman—Bass principally.
From Footes' Bay or Georgian Bay. Camp.
Three Mile Lake—Pickerel.
From Windermere. Camp.
Skeleton Lake—Lake Trout.
From Windermere or Rosseau. Hotels.
Leonard Lake—Bass, Pickerel and Lake Trout
From Beaumaris. Hotels.
Muskoka Lake—Bass, Pickerel and Lake Trout.
G. T. R. to Gravenhurst or Bracebridge; thence steamboat. Hotels.
Lake Rosseau (same).
Lake Joseph (same).
Vernon Lake—Lake Trout.
G. T. R. to Huntsville. Hotels, farm houses.
Peninsula Lake, G.T.R. to Huntsville. Hotel.

DISTRICT OF NIPISSING—Overseer, H. M. Legault, Sturgeon Falls.

Lakes Tomico, Cheboygan, Clear, Turner, Cache, Muskesuique, Pike, and Lost—Bass, Pickerel and Maskinonge.

C. P. R. to Sturgeon Falls, then drive. Camping.
Wahnipitae Lake—Salmon Trout.
C. P. R. to Wahnipitae. Hotel accommodation.
Lake Nipissing and French River—Bass, Maskinonge, and Salmon Trout.
C. P. R. to Sturgeon Falls. Hotel accommodation. Camp.

DISTRICT OF NIPISSING—Overseer, S A. Huntington, North Bay.

Nipissing, Trout, Pine, Nosbonsing and Nagle Lakes—Bass, Pickerel and Maskinonge.

Amable du Fond, Le Vase, Little Sturgeon, Sturgeon, Sand, French, Wolesley and Widow Rivers—Bass, Pickerel and Maskinonge.

Upper Amable du Fond and branches, Chippewa, Duchesne and Blue Sea Creeks and Jocko Waters—Speckled Trout.

Four Mile, Otter, Anderson, Mud, Moose, Red Pine, Elbow and Rib Lakes—Speckled and Grey Trout.

These lakes can all be reached by G.T.R. and C.P.R. and Temiscamingue Railways. Camp.

DISTRICT OF NIPISSING—Overseer, F. Baechler, Nipissing.

Lake Nipissing—Maskinonge, Bass, and Pickerel.
Perch, Sand, and Shoal Lakes—Black Bass.
G. T. R. to Calendar or North Bay.
C. P. R. to North Bay or Sturgeon Falls. Hotels and Camp.

DISTRICT OF NIPISSING—Overseer, John Armstrong, New Liskeard.

Tomagami Lake and River, and small lakes adjoining—Bass, Maskinonge and Speckled Trout.
Casaganique Lake—Pickerel, Speckled Trout and Bass.
Twin Lakes—Speckled and Grey Trout, Bass, Maskinonge and Pickerel.
Temiscamingue R. R. to New Liskeard. Hotels.

COUNTIES OF NORTHUMBERLAND AND HASTINGS—Overseer, C. S. Gillespie, Campbellford.

Trent River and Crow River—Bass and Maskinonge.
G. T. R. from Brockville or Peterboro. Good hotels.

COUNTIES OF NORTHUMBERLAND AND PETERBORO'—Overseer, A. Skeen, Harwood.

Rice Lake—Maskinonge and Black Bass.
G. T. R. to Cobourg, and stage, and C. P. R. to Peterboro', and boat. Hotel.

COUNTY OF NORFOLK—Overseer, G. D. McCall, Vittoria.

Long Point Bay—Black Bass.
G. T. R. to Port Rowan, and St. Williams. Hotels.

M. THWAITE, Oshawa, District Overseer.

Lakes Simcoe and Couchiching—Bass, and Maskinonge.
G.T.R. Hotels at Barrie and Orillia.
Stony Lake—Bass, and Maskinonge.
G. T. R. Hotels and summer cottages. Camp.
Rice Lake—Bass and Maskinonge.

G. T. R. to Hastings. Hotel accommodation.
Scugog Lake—Bass and Maskinonge.
G. T. R. to Port Perry. Hotel accommodation.

Counties of Ontario and Durham—Overseer, John Bowerman, Port Perry.

Lake Scugog—Maskinonge and Black Bass.
G. T. R. Hotels.

District of Parry Sound—Overseer, John Paul, Loring.

Pickerel River and Wilson Lake—Black Bass, Pickerel, Maskinonge and Lake Trout.
G. T. R. to Trout Creek Station, then stage. Hotel and farmhouses; camp.

District of Parry Sound—Overseer, J. A. Johnson, Parry Sound.

Mill Lake—Bass and Pickerel. Drive from Parry Sound.
Otter Lake—Bass and Pickerel. Drive from Parry Sound.
McCoy, Spider, Six Mile and Trout Lake—Bass and Pickerel.
C. A. R. or steamboat to Parry Sound. Camp.
Georgian Bay—Bass and Maskinonge.
The Canada Atlantic to Parry Sound. Hotel or camp.

District of Parry Sound—Overseer, R. Menzies, Burk's Falls.

Cebebe, Ahmic, and Lakes of Many Islands—Bass and Pickerel.
G. T. R. to Burk's Falls. Camp.
Magnetewan River, Loon, Grass, Duck, Long, Buck, East and Raven Lakes—Bass and Pickerel.
G. T. R. to Burk's Falls. Camp.
Island, Crooked, Blue and North Lakes—Bass and Pickerel.
G. T. R. to Burk's Falls. Camp.

Pelee Island—Overseer, William Stewart, Pelee Island.

Lake Erie—Bass in large quantities.
G. T. R. to Windsor or Amherstburg, and Lake Erie & Detroit River Railway to Kingsville or Leamington, then by steamer. Hotels.

County of Peterboro'—Overseer, John Brown, Rockdale.

Lakes Crow, Belmont, Round and Kashbogngi—Bass and Maskinonge.
Crow River, North River and Deer River—Bass and Maskinonge.
C. P. R. Hotel accommodation.

County of Peterboro'—Overseer, Thos. Nicholls, Hall's Bridge.

Lakes Ball, Chemong, Big Buckhorn, Little Buckhorn, Deer, and Deer Bay—Bass and Maskinonge.
G. T. R. to Lakefield or Lindsay. Good hotel accommodation.
Lakes Sandy, Gull, Ketchum, Eagle, Gold, and Coal—Mountain or Lake Trout.
Stage from Buckhorn. Summer hotel accommodation.

County of Peterboro'—Overseer, P. W. C. Shewen, Apsley.

Eagle Lake—Salmon Trout.
Loon Lake—Black Bass.

Long, Trout, Bass, Cadge, and Dinner Lakes—Bass and Salmon Trout.
G. T. R. to Lakefield, and per steamboat to Mt. Julian. Camp
Jack's Lake—Black Bass and Salmon Trout.
G. T. R. to Lakefield and per steamboat to Mt. Julian. Camp.

County of Peterboro'—Overseer, J. W. McIntyre, Keene.

Rice Lake and Indian River—Black Bass and Maskinonge
G. T. R. to Keene or Hastings. C. P. R. to Havelock, stage two miles. Hotels; camp.

County of Peterboro'—Overseer, F. J. Moore, Lakefield.

Cachewamuck, Clear, Lovesick, Stoney, and White Lakes—Bass, Trout and Maskinonge.
G. T. R. to Lakefield. Hotels.

County of Prince Edward—Overseer, M. Clark, Picton.

Consecon Lake, East and West Lake, and Bay of Quinte—Bass, Pickerel and Maskinonge.
G. T. R. to Deseronto, Belleville and Kingston Hotels
Rainy River District—Overseer, John Nash, Rat Portage.
Cameron Lake, Brooks Lake, Summit Lake, and Cross Lake—Black Bass.
Otter Lake—Trout and Bass.
Little Pine Lake—Maskinonge.
Big Pine Lake—Maskinonge and Trout.
Dog Tooth Lake—Trout.
South of Rat Portage by steamer through Lake of the Woods. Camping out.
Pickerel Lake—Speckled Trout.
Buzzard Lake—Lake Trout.
East of Rat Portage, via C.P.R., to Gilbert Station Camping out.
Lakes Silver, Favel, Delancy and Boulder—Speckled Trout.
Canyon Lake—Maskinonge.
Linklater Lake—Brook Trout.
North and north-east of Rat Portage, C. P. R. to Margach Station.
There are many other lakes abounding in Trout and other fish. All these waters are practically virgin ground. Camping out.

Rideau Waters—Overseer, J. C. Judd, Morton.

Sydenham Lake—Pike.
K. & P. Railway from Kingston to Harrowsmith. Hotels.
Long Lake—Bass, Salmon, Trout and Pickerel.
Canoe Lake—Bass, Pike and Salmon Trout.
Rock, 13 Island, Desert, White, Cole and St. Andrew's Lakes—Bass and Pike.
K. & P. to Vernon Station. Hotels.
Sand and Wolf Lake—Bass, Pike, Salmon Trout and Pickerel.
B. & W. to Westport. Hotels.
Bob's Lake—Bass and Salmon Trout.
Eagle Lake—Bass, Salmon Trout and Pickerel.
Duncan Lake and Crow Lake—Bass.
K. & P. to Tichborne Station. Boarding houses.
Long, Sharbot, St. George, White and Silver Lakes—Bass and Salmon Trout.
K. & P. to Sharbot Lake Junction. Hotels.

Cross Lake and Crutch Lake—Bass and Salmon Trout.
K. & P. to Clarendon Station. Hotels.
Trout Lake—Salmon Trout and Bass.
K. & P. to Levant Station. Hotels.
Round Lake and Clyde Lake—Bass and Pike.
Calabogie Lake—Bass, Pike and Maskinonge.
K. & P. to Clyde Forks Station. Hotels.
Brule, Fortune, Schooner, McKay and Burl Lakes—Bass, Salmon Trout and Speckled Trout.
K. & P. to Levant Station, and stage to Plevna. Farmhouses.
Cranberry, Dog and Loughboro Lakes—Bass, Pike and Salmon Trout.
Rideau Navigation Company from Kingston. Hotels.
Whitefish, Sand, Crow, and Troy Lakes—Bass and Pike.
Rideau Navigation Company from Kingston. Hotels.
Opinicon, Indian, Benson, Rock, Mosquito, Clear and Mud Lakes—Bass and Pike.
Rideau Navigation Company. Hotels.
Otta, Bass and Otter—Bass, Pike and Salmon Trout.
Rideau Navigation Company. Hotels.
Charleston Lakes—Bass and Salmon Trout.
Brockville & Westport Railway to Athens. Hotels.
Beverley Lake—Bass and Pike.
Brockville & Westport Railway to Delta. Hotels.

County of Stormont.—Overseer, Isaac Blondin, Cornwall

St. Lawrence River and Lake St. Francis—Bass, Pike, Maskinonge and Pickerel.
G. T. R. to Cornwall or Lancaster. Summer hotels.

County of Victoria.—Overseer, A. Trotter, Bobcaygeon.

Sturgeon Lake and Emily Creek—Bass, Maskinonge, Perch and Catfish.
G. T. R. to Lindsay or Fenelon Falls. Hotel accommodation.
Pigeon Lake, Little and Big Ball Lakes and Buckhorn—Bass, Maskinonge, Perch and Catfish. Good hotel accommodation.

Counties of Simcoe and Ontario.—Overseer, John Steele, Uptergrove.

Simcoe, Couchiching, St. John and Little Mud Lakes—Bass, Perch, Pickerel, Maskinonge and Lake Trout.
G. T. R. to Sutton, Beaverton, Orillia and Barrie. Hotels; camp.

County of Simcoe.—Overseer, F. Terry, Queensville.

Holland River—Black Bass and Maskinonge.
G. T. R. to Newmarket, then stage.
Lake Simcoe—Bass and Maskinonge.
G. T. R. to Jackson's Point, Letroy, etc. Good hotel and summer boarding houses.

County of Simcoe.—Overseer, Felix Labatt, Victoria Harbor.

Lakes Gloucesterpool, Six Mile, Crooked, Black, and Burrows, and River Severn; and also along the shore of Georgian Bay, from Port Severn to Moon River—Black Bass, Maskinonge, Pickerel, and Pike.
G. T. R. to Penetang, Midland or Waubaushene, then boat. Hotel and summer boarding houses.

County of Simcoe.—Overseer, Wm. Pratt, Penetanguishene.

Hog Creek—Speckled Trout.
G. T. R. to Victoria Harbor. Hotels; camp.
Severn River and Lake—Black Bass, Pike and Maskinonge.
G. T. R. to Wabaushene or Severn Bridge. Hotel; camp.
Honey Harbor—Bass, Pike, Maskinonge and Pickerel.
G.T.R. to Midland. Hotel; camp.
McRae's Lake and River—Bass, Maskinonge and Pickerel.
G. T. R. to Midland. Hotel; camp.
Crooked and Six Mile Lake—Bass, Maskinonge and Pickerel.
G.T.R. to Midland. Hotels.
Muskoka River and Black River—Bass and Pickerel.
G. T. R. to Midland. Hotels.
Cognashene Lake—Bass and Pickerel.
G. T. R. to Midland. Hotels.

County of Simcoe.—Overseer, Patrick Howard, Collingwood.

Nottawasaga River and Bay—Bass fishing.
Mad, Noisey, Pretty and Beaver Rivers, and Silver Creek—Brook Trout.
G. T. R. Hotel accommodation at Collingwood and Thornbury.

District of Thunder Bay.—Overseer, Wm. McKirdy, Nepigon.

Lake Nepigon, Sand, Wabmosh and Nepigon Rivers, Fraser Creek and Trout Creek—Speckled Trout.
Bass Lake—Bass and Speckled Trout.
C. P. R. to Nepigon Station. Hotels; camp.
Mazokama, Cyprus and Gravel Rivers—Speckled Trout.
C. P. R. Camp.
Steele and Pearl Rivers, Coldwater and Cleg Lakes—Speckled Trout.
C. P. R. to Pearl Station. Camp.
Loon Lake, with some smaller lakes in immediate vicinity—Good Trout and Bass fishing.
C. P. R. to Pearl Station. Camp.
Mackenzie River, east of Port Arthur—Speckled Trout.
C. P. R. to Port Arthur. Camp.
Most of these lakes are literally full of Brook Trout.

REPORT OF THE CAPTAIN OF THE CRUISER "GILPHIE."

S. T. Bastedo, Esq., Deputy Commissioner of Fisheries :

Sir,—I have the honor to submit my annual report of the work performed by the Fisheries Protection Steamer "Gilphie" for the season 1903.

We commenced fitting up the boat on the 23rd March, and were all ready for work on the 1st April, but the weather was so bad that we were unable to put to sea before Monday, the 6th. We managed to reach Cape Rich, but had to return as far as Wiarton, where we remained for the night. On the following day we went to Collingwood, calling at Meaford, where we found three tugs waiting for the abatement of the stormy weather before leaving for Point au Baril ,and the Bustards. We left Collingwood the following morning, and visited Cedar Point and Thunder Bay, where we found a few fishermen preparing for work, and arrived at Penetang at 5 p.m. We learned that the ice had not left the inside channel between Minnecognashene and Moon Island, so we remained at Penetang until Monday, the 13th, when we proceeded to Midland, calling at Present and Beausoliel Islands. On Tuesday we went to Miners' Lake, calling at Minnecognashene and Maxwell Islands, without discovering any illegal fishing; but the following day we succeeded in finding three trap nets at Waubuno Island, which we burned. Again, on each of the following days we captured some nets, one very large trap near the Iron City Club House, and three more near Copper Head. On Monday, the 20th, we left Parry Sound for Point au Baril, where we arrived at 7 p.m., after making a careful search for nets in Shawanga Bay, but did not find any, although there was every evidence of fishing having been recently carried on. We returned again on the following morning, and saw several men running into the bush. We also found fish and the lines off seines, as well as boats; but the weather was very unfavorable, and we were therefore unable to locate the seines, which were no doubt sunk in the water. The following morning we left Shebeshekong, and visited Campbell's Rock and Sandy Islands, but the wind was too strong to admit of using our boats. We then proceeded to Sans Souci, where we placed some channel buoys. On the following day we placed more buoys at Jubilee and Alexander Islands, also at Superior Shoal and Miner Rocks, arriving at Muskoka Mills at 6 p.m. On the following days we made a search of North and South Honey Harbor, and found several pike gill nets. We also saw where several trap nets had been recently removed. We left Penetang on Monday morning, the 27th, for Midland, where we took on coal, returning to Penetang the same evening. On the following day we visited Moon River, and found one trap net near Whistler's Bay while en route. We left again the following morning, calling at Waubuno Island, Copper Head, and Sans Souci, arriving at Depot Harbor at 6 p.m. The next day we left for Point au Baril, after making a thorough search of Shawanaga Bay.

Friday, the 1st May, was too rough for us to leave Point au Baril, but the following day we patrolled as far as Byng Inlet, and on Sunday went to the Bustard Islands. On Monday, the 4th May, one of the boats went over to Bad River, while the other was engaged in searching among the islands, and between them they succeeded in finding 26 trap nets. Tuesday was too rough to do any further work, and on Wednesday we proceeded to Killarney by way of Beaverstone, where we made a diligent search for nets, but without success. On Tuesday, while in McGregor's Bay, we caught several of the Wekwimikong Indians, who had been seining, but as they were unable to pay a fine, and their seines were thrown overboard, we let them go. On Friday and Saturday we had the two boats searching for nets in McGregor's Bay and Whitefish River, and reached Little Current at 7 p.m., where we remained over Sunday. Overseer Oliver and his assistant were helping us.

The following week was spent in patrolling the Badgley Channel, Shawanaga Bay, Shebeshekong, around Campbell Rock, San Souci, Jubilee Islands, Gohome River, and Minnecognashene, arriving at Midland at noon on Saturday, where we took on coal

and then proceeded to Penetang, where we remained over Sunday. On Monday we succeeded in finding four trap nets at Giant's Tomb, and on Tuesday at the Watchers' Island we captured four more. On Wednesday we visited the Christian Islands, Meaford and Collingwood, and on Thursday, the 21st, went to Owen Sound, where the boat was placed in the dry-dock to be caulked and repaired.

We left Owen Sound again on Tuesday, the 2nd June, patrolling as far as Tobermory, and the remainder of the week was spent patrolling around the Manitoulin Island. We remained at Little Current over Sunday. On Wednesday, the 10th, we found three trap nets in Manitowaning Bay, and on Friday got three seines at Killarney. On Monday, the 15th, we patrolled from Byng Inlet to Dillon's Point, and on Tuesday, while at Sandy Island, we captured three trap nets, which were full of Whitefish. Again on Thursday, the 18th, we found one trap net near Waubuno Island, and on the following day four more were found, two near Cognashene Point, and the other at Espabekong Island. We left Penetang on Monday, the 22nd, and captured one trap net at Sturgeon Point, and on the following day we got three more in Sturgeon Bay. On Wednesday we patrolled as far as Midland without finding any nets, but on Thursday we captured three trap nets in Matchedash Bay. On Friday got two more in Cognashene Lake, and again on Saturday we succeeded in finding another trap net at Split Rock. The following week was spent patrolling among the islands on the north shore as far as Little Current, where we arrived at 5 p.m. on Saturday.

On Monday, the 6th July, we left Little Current with Overseer Oliver on board, and we spent the whole week in making an inspection of his division, but found nothing irregular. We left Little Current again on Monday, the 13th, and spent the week in patrolling all the waters between there and Penetang. We left Penetang again on the 20th July, calling at Minnecognashene, Maxwell Islands, Go-home, Copperhead, Sans Souci, and Campbell's Rock, and on Tuesday visited Sandy and Umbrella Islands. Wednesday was spent searching through Shebeshekong Channel and Shawanaga Bay, and Thursday Bayfield Harbor, where we found one trap net; and on Friday, while at Limestone Island, we captured another trap net. On Saturday we searched Shebeshekong Channel and Shawanaga Bay, arriving at Parry Sound at 6 p.m. We left Parry Sound on Monday morning, and devoted the whole week to patrolling among the islands and bays, reaching Midland at 2 p.m. and Penetang 6 p.m. on Friday. Saturday was spent in washing out the boiler, and fixing things up generally.

On Monday, the 3rd August, we found two trap nets at Giant's Tomb. We also visited Cedar Point and Christian Island. On Tuesday we patrolled as far as Collingwood, and on Wednesday went to Owen Sound, where we took coal. We went as far as Wiarton on Friday, and spent Saturday in company with Overseer Stephens inspecting the waters of his division. We left Wiarton on Monday morning, and visited the Cape Croker Indian Reserve, arriving at Meaford at 7 p.m., and on Tuesday we tried to reach Christian Islands, but were obliged to put into Thornbury for shelter, where we had to remain until Thursday, owing to rough weather. The remainder of the week was spent patrolling around Christian Island, Cedar Point, Thunder Bay, and Whaleback Channel, arriving at Penetang at 6 p.m. Saturday, after taking on coal at Midland. On Tuesday, the 18th August, we captured two trap nets on the north side of Batteau Channel, and on Thursday got another at Bad River. On Monday, the 24th August, we went to McGregor's Bay, and there succeeded in finding a trap net, and on Wednesday visited Manitowaning Bay, and found another trap net. And again on Thursday, while at Beaverstone, we picked up another net. We continued searching until we reached Parry Sound, on Saturday, where we remained over Sunday. On Monday we went to Palestine Islands, and searched with the boats around Sandy and Batteau Islands, and on Tuesday we captured two trap nets at Sandy Island. Wednesday and Thursday were spent in patrolling as far as Maxwell Islands, and on Friday the two boats proceeded to search for nets. One went to Giant's Tomb, and the other searched among the islands, and they succeeded in finding two trap nets, and then proceeded to Penetang. The following week was spent in patrolling the several

harbours and around the islands up to Parry Sound, where we arrived on Saturday at 5 p.m.

On Monday, the 14th September, we left Parry Sound for Penetang, calling at Hope Island, and on Tuesday went to Owen Sound, where we were obliged to remain until Friday, owing to rough weather. We then went to Wiarton, and on Saturday took Overseer Stephens over his district. On Tuesday, the 22nd September, we arrived at Tobermory, where we were storm-bound until Friday, when we proceeded to the Manitoulin Island, arriving at Little Current on Saturday at 2 p.m. We devoted the following week to patrolling around the Manitoulin Island and the North Shore as far as Parry Sound, where we arrived on Saturday at 5 p.m.

We left Parry Sound on Monday, the 5th October, and made diligent search during the week between there and Penetang without coming across any illegal nets. On Tuesday, the 13th October, we found one large trap net off Sawlog Point, and on Wednesday got three more near Sturgeon Point. Thursday was Thanksgiving Day, and we remained in Victoria Harbor. On Friday we found a few pike nets in Honey Harbor, and on Saturday we went to Midland and took on coal, and then proceeded to Penetang. On Monday, the 19th October, we left Penetang, but were unable to get past Moose Deer Point for two days, owing to heavy seas, but got to Point au Baril on Wednesday, where we learned that most of the fishermen left for home, as the weather was bad and the fishing poor. We went to the Bustard Islands on Friday. Wind blowing very hard. On Saturday afternoon we captured one trap net at Bad River, and also caught an Indian fishing illegally, whom I fined $10. The weather was very bad, and our boat had several narrow escapes from being swamped. We continued our search for nets at the Bustards and vicinity during the following week, and on Wednesday we found another trap net at Bad River. We chased several Indians who were fishing in Black Bay on Friday, and when we reached Grumble Point we caught one of them, and fined him $10, besides confiscating his fish, which we sold for $5.

On Tuesday, the 3rd November, we caught a man from Killarney fishing illegally in Black Bay, and imposed a fine of $10 on him. We saw several other boats, but were unable to get near them. The remainder of the week was too stormy to put out, and we were obliged to go into French River for supplies on Saturday. The following week was also too stormy for anyone to move out, and as no boats were arriving provisions got very scarce. On Sunday, the 15th November, however, the steamer "Jones" arrived, and relieved the situation somewhat, and on Tuesday afternoon the wind abated sufficiently to allow us to go to Point au Baril, where we found that all the fishermen had left. On Wednesday we passed through Shawanaga Bay and Shebeshekong Channel, and on to Campbell's Rock. On Thursday and Friday there was a snowstorm, and it was with difficulty we got our course, but managed to reach Penetang at 5 p.m. on Friday, where we remained until Monday morning, winding up the business for the season.

On Monday, the 23rd November, there were sleet and rain, which turned to snow. We, however, worked our way to Thunder Bay, and Tuesday managed to get to Christian Island, although it still snowed and blew a gale. We started out on Wednesday, but were obliged to return for shelter after gaining five miles. We had to remain until Wednesday, when we managed to reach Wiarton at 5 p.m. On Saturday, the 28th November, we made a tour among the islands, and caught an Indian fishing at Whitecloud Island with a net. I fined him $10, and then returned to Wiarton.

We spent Monday, Tuesday and Wednesday patrolling around the islands, and reached Owen Sound at 5.30 p.m. Wednesday, the 2nd December. On Thursday I received instructions to lay the boat up for the winter, which we proceeded to do, and on the following Tuesday all the work was completed. The boat was handed over to Messrs. Abbey Bros., and the crew were dismissed.

Your obedient servant,

M. A. McAULAY,

10th December, 1903. Captain.

NEPIGON TROUT.

A paper by Mr. William McKirdy, Ontario Government Fishery Overseer at Nepigon, read at the annual meeting of the North American Fish and Game Protective Association, held at Ottawa on the 21st and 22nd January, 1903 :

So much has been written about the Nepigon and its Trout by much abler writers than I, that I feel some diffidence in preparing this paper, but I have the consolation of knowing that each one handles the subject as it appears to him, and I trust that my paper may present some new colorings and facts that have not appeared to others.

The average size of Nepigon Trout has been for many years two and a half pounds (2½), the largest accredited fish caught on the river, eight and a quarter pounds (8¼), although some larger have been reported. To the angler used to fishing other streams, these are extraordinary fish. In fact, many visiting the stream for the first time have said it was a salmon proposition in the matter of the size of the fish, and the tackle necessary to hold them, which is really the case. Nor is it to be wondered at, that the Nepigon is the home of these beauties. As the conditions are unique—no more favorable ones could be found in the world—the Brook Trout, in sympathy with these surroundings, have excelled their kind.

Nepigon Lake, the head waters of the St. Lawrence, is some eighty miles long by fifty wide, with a coast line equal to that of Lake Ontario ; the water is of the clearest and purest, and studded with bold, rocky islands, capped with the stately spruce and graceful birch. Here the finny tribe thrive, as the lake is filled to overflowing with Whitefish, Lake Trout (some of the latter have been caught weighing forty pounds), and last, but not least in importance, the Brook Trout (Salvalinus fontinalis), varying with their surroundings in size and beauty. It is stated by old residents on the lake that Brook Trout weighing from ten to twelve pounds have been caught on the spawning beds, and to give an idea of the quantity of these fish, I have mapped out some twenty miles of spawning beds, and in doing so, have only shown a portion of them. A gentleman traversing the lake during September told me he passed through an extraordinary large school of Brook Trout ; this was before the spawning season, which commences on the lake about the 15th of October. Most of the streams emptying into the lake have no trout in them, except in the higher reaches ; there is one exception, however, viz., Sand River, a wide, rapid stream on the northwest corner. Here, I understand, the stream is full of these Trout, equal in size and beauty to those of the Nepigon River. Lake Nepigon will, no doubt, become a great tourist resort. Its ideal camping places on the numerous islands and beautiful bays, together with the delightful cool nights in the hottest parts of the season (one can always enjoy a good supply of warm blankets), possessing the charms of nature untrammelled by civilization, yet within easy reach of modern travel.

The Nepigon River is simply an outlet to the lake, three to four hundred feet wide, forced in a great measure through rocky formations, preserving its clearness while leaping over foaming falls, dancing over surging rapids, losing itself in placid lake expansions, repeating itself thus as it dashes through towering precipitous rocks, where its deep green water lends a charm that is not easily forgotten in its forty miles' course to Lake Superior, dropping 315 feet in that distance.

The Government has preserved the stream in its natural beauty, only the necessary camping grounds being cleared for that purpose. An overseer is constantly patrolling the river, whose duties are to see that there is no abuse of the fishing privileges, that all camps are kept clean, and all refuse burned, so that when a camp is left by one party, it is in readiness for the next. His duty is also to facilitate in any way possible, by information and courtesy, the pleasure of the anglers. For some years back it has been found that Pike were on the increase, and threatened to do serious damage to the trout. Last year a raid was made on them in their haunts by netting these places. Thousands of these Pike were caught, of weights

varying from four to twenty-five pounds. I have measured them from four to five feet long.

Your society aims at preserving the game and fish of America; I think there is a great work for you. I can look back to the time when I was a boy, and remember the splendid fishing in streams about home; and those days have gone, and so has the fishing, and the work you have undertaken is to produce these conditions as far as possible, and preserve those that are as nature left them. It seems to me that if there could be left a small wooded belt along our streams, even a very narrow one, this would not interfere with the general utility of the land, in fact, would improve it, and would be the means of preserving our streams to a very great extent.

I have noticed that in every lake and every principal stream (and smaller ones emptying into it) where Trout are found that each one has Trout peculiar to itself. Great care is taken by breeders of cattle and other domestic animals to raise only the best; why not so the Trout? And if the Nepigon Trout is the finest and gamest fish in the world, why not stock our depleted lakes and streams with it?

There are no such possibilities for securing spawn known as in Lake Nepigon, with its miles of spawning grounds. Nets could be thrown around them, and spawn could be secured in quantities to stock America, if possible. The Nepigon River is itself one vast spawning bed on all its rapid portions. I passed over half a mile of water at the foot of Pine Portage where the fish fairly covered the whole stream, shining out with their gorgeous fall colorings, a sight long to be remembered.

SCHEDULE OF FISHERY OVERSEERS IN THE PROVINCE OF ONTARIO.

District Overseers.

Name.	Residence.	Districts.
Angus Macaulay..	Southampton	Province of Ontario.
J. C. Judd.....	Morton	That part of the Co. of Frontenac lying north of the Twps. of Kingston and Pittsburg; the Twps. of North and South Crosby, Bastard, South Elmsley and Kitely in the Co. of Leeds, the Counties of Lanark, Carleton, Russell, Prescott, Glengarry and Stormont, and for those portions of Dundas and Grenville lying north of C. P. R.
Peter Lamarsh . .	Wheatley	Twps. of Anderdon, Malden, North Colchester, S. Colchester, N. Gosfield, S. Gosfield, and Mersea, in the Co. of Essex, with jurisdiction over so much of the waters of the Detroit River and Lake Erie as lies in front of said Townships.
Hy. Mathen	Brockville.....	That portion of Co. of Frontenac lying south of the Twps. of Portland and Storrington; for the Twps. of Leeds, Lansdowne, Front of Escott, Rear of Escott and Yonge and Elizabethtown, Co. of Leeds and for those portions of the Cos. of Dundas and Stormont lying south of the C. P. R.
J. K. McCargar ..	Belleville.....	Counties of Hastings, Lennox, Addington and Prince Edward and the Electoral district of East Northumberland.
Wm. Pratt	Penetang.....	County of Simcoe and Districts of Muskoka and Parry Sound, and all waters and islands in Georgian Bay fronting said counties.
M. Thwaite	Oshawa	Counties of Ontario, Durham, Victoria, Peterborough, Provincial County of Haliburton and Electoral District of West Northumberland, including the waters of Lakes Simcoe and Couchiching.

Local Overseers.

O. Allan	Wallaceburg	County of Kent, fronting on Lake St. Clair, exclusive of Dover West Tp., also Walpole and St. Anne's Islands, Co. Lambton.
Jas. Avery.	Dorset	Districts of Muskoka and Haliburton.
J. Armstrong	Thornloe	Temiscamingue and tributaries.
Fred Baechler	Nipissing	South River and South Bay, Lake Nipissing.
Henry Barr	Douglas	County Renfrew and Tps. of Nipissing District lying east and south of Algonquin Park.
George L. Bailey .	Callandar	Lake Nipissing, in the Districts of Parry Sound and Nipissing.
A. W. Bate	St. Catharines....	County of Lincoln.
Geo. Bilton	Newboro	Tps. of North Crosby, South Burgess, South Elmsley and over the Rideau waters as far as Smith's Falls.
I. Blondin.....	Cornwall.....	Cos. Stormont and Glengarry and St. Lawrence River,
J. Bowerman	Port Perry	Tp. of Reach, Co. Ontario, and Tp. of Mariposa, Co. Victoria, also River Scugog, and joint jurisdiction over Lake Scugog.
Nicholas Brady...	Lindsay	Tps. of Emily, Ops, Co. Victoria.
John Brown	Rockdale.....	Tps. of Belmont and Methuen, County Peterboro'.
Frederick Brown .	Baysville.....	Tps. MacLean, Ridout, Franklin and Brunel.

SCHEDULE OF FISHERY OVERSEERS.—*Continued.*

Name.	Residence.	District.
Elisha Brown....	St. Marys.....	That part of Thames and Avon Rivers and tributaries lying within the Townships of Downie. Fullerton and Blanshard.
D. Cattanach.....	Wolfe Island.....	Township of Wolfe Island and for the islands of Simcoe, Garden and Horseshoe, and any other islands comprised in the Tp. of Wolfe Island, with jurisdiction over the waters of the River St. Lawrence and Lake Ontario surrounding the said Tp. of Wolfe Island and the islands comprising the same.
Edw. Charpontier.	Sutton West	Tp. of Georgina, County of York.
M. Clark.....	Picton	Co. of P. E. Island, exclusive of the Twps. of Ameliasburg and Sophiasburg.
A. Clunis	Claude	In and for the Tps. of Chinguacousy, Caledon and Albion in the County of Peel.
Geo. Clyde.....	Cataraqui	Tps. of Pittsburgh and Kingston, Co. of Frontenac.
A. Corsant.....	Masonville	Co. Middlesex, East of boundary line between the Tps. of Westminster and Delaware, London and Lobo.
J. B. Cousineau ..	Windsor	For Tps. of Sandwich West, Sandwich East, Sandwich, Maidstone, Rochester and Tillbury West, Co. Essex.
Arch. Couper.....	Dunnville	Tps. of Moulton, Sherbrooke and Wainfleet, in the District of Monck, and Lake Erie.
Wm. Craig.....	Glenburnie	Tps. of Storrington, Loughboro, Portland and Bedford Co. Frontenac.
John Crotty ...	Bothwell	River Thames and waters tributary thereto lying between the Village of Wardsville and the boundary line between the Tps. of Delaware and Westminster.
H. Davieau	Michipicoten Har.	Michipicoten Island.
Chas. de Laronde.	Nepigon.....	Nepigon River and tributaries.
J. Dickson	Westwood.....	That part of Trent River and tributaries lying between Rice Lake and Trent Bridge, Co. Peterboro'.
W. J. Donaldson .	Donaldson Mills ..	Tps. of Palmerston, Clarendon, Barrie, Miller, North Canonto, and South Canonto, electoral district of Addington.
John Driscoll.....	D'Arcy.....	The waters of St. Lawrence River around Howe Island.
W. Drummond...	Keene.....	County of Peterboro.
H. Duchesne	Treadwell	Counties of Prescott, Russell, Stormont and Glengarry, with jurisdiction over so much of the Rivers Ottawa and St. Lawrence as lies in front of said Counties.
Joseph Ellis.....	Fort Erie	In and for the Electoral District of Welland, with jurisdiction over so much of the waters of Lake Erie and the Niagara River, exclusive of the waters of the said river north of the Niagara Falls, as lies in front of the said Electoral District.
John Farrell	Cayuga	Grand River from division line between Tuscarora and Onondaga Tps. and Oneida and Seneca Tps. to its mouth and waters tributary thereto, also for Tps. of Dunn and South Cayuga.
A. J. Flood	Delta	Upper and Lower Beverley lakes and rivers.
John Free.....	Byng Inlet	Maganetawan River and waters of Georgian Bay in vicinity of Byng Inlet.
R. Flynn.....	Mountain Grove..	Tps. of Hinchinbrooke, Oso, Olden and Kennebec, district of Addington.

SCHEDULE OF FISHERY OVERSEERS.—*Continued.*

Name.	Residence.	District.
S. Freeman	Brighton	Lake Ontario fronting Counties of Northumberland and Durham, also inland waters tributary to said lake in the above counties.
Wm. Gardner....	McDonald's Corn's	Tps. of Dalhousie and North Sherbrooke, Co. Lanark.
Joseph Gerow	Port Perry	Tps. of Cartwright and Manvers, Co. Durham, also River Scugog, and joint jurisdiction over Lake Scugog.
Chas. M. Gibson..	St. Catherines ...	County of Lincoln.
J. R. Gibson	Mallorytown	River St. Lawrence, lying between Mallorytown Landing and Brockville.
J. W. Gibson.....	Strathroy	Co. of Middlesex.
C. S. Gillespie.	Campbellford.....	Trent River and tributaries,
O. V. Goulette ...	Gananoque	Gananoque River and for that part of the River St. Lawrence, lying between Wolfe Island and Rockport.
J. R. Graham....	Fenelon Falls	Tps. Verulam, Fenelon, Eldon, Bexley, Sommerville, Laxton, Digby, Dalton and Longford, Co. Victoria, and Tp. of Lutterworth, Co. Haliburton.
A. Guerord	Bonheur	Provisional Judicial District of Rainy River which lies east of the 5th meridian line, and for so much of the said district as lies between the 5th and 7th meridian line south of a line running due east from One Side Lake to White Fish Lake.
R. Hadgraft	Port Dalhousie ..	County of Lincoln and over so much of the waters of Lake Ontario as lies in front of the said county, and with jurisdiction over the Niagara River between its mouth and the Falls.
P. Howard	Collingwood.....	Tps. of Collingwood and Osprey, Co. Grey, and Tps. of Nottawasaga and Sunnidale, Co. Simcoe, and Georgian Bay.
Andrew Hughson.	Orangeville	County of Dufferin and Tps. of Tossorontio, Adjala, and Tecumseth, County of Simcoe.
S. A. Huntington.	North Bay	Lake Nipissing and tributaries thereto in district of Nipissing.
J. A. Johnson....	Parry Sound	For the Tps. of Shawanaga, Burpee, Hagerman, Ferguson, Carling, McDougall, McKellar, Christie, Foley, Parry Island, Cowper and Conger in the District of Parry Sound.
F. Johnstone	Harwood	Tps. of Hamilton and Alnwick, Co. Northumberland, and over Rice Lake.
Henry Johnson ..	Brantford	That part of Grand River lying between the southerly boundary of Town of Galt and the boundary line between Tuscarora and Onondaga Tps. in Co. Brant and the Tps. of Seneca and Oneida in Haldimand Co.; also concurrent jurisdiction with Overseer Messecar over Tributaries to the Grand River in Burford, Oakland and Brantford Tps. West of the Grand River.
Joseph Kinder....	Rockingham.....	Lake Charlotte, Tp. Brudenell, Co. Renfrew.
F. Labatt	Victoria Harbour.	Tps. of Freeman, Gibson, Baxter, Wood and Morrison, in Dist. of Muskoka; also over Severn River.
J. K. Laird.....	Guilds.....	Lake Erie fronting Co. Kent, together with inland waters of said Co. tributary to Lake Erie.
E. T. Loveday....	Ottawa.	In and for the Tps. of Nepeau, Gloucester, North Gower and Osgoode, in the Co. of Carleton, with jurisdiction over so much of the River Ottawa and the River Rideau and Rideau Canal as lies in front or within the said Tps. and over the tributaries to the said rivers and canals.

SCHEDULE OF FISHERY OVERSEERS.—*Continued.*

Name.	Residence.	District.
H. M. Legault....	Sturgeon Falls ...	Dist. of Nipissing, North and West Tps. of Widdifield, Merrick, Stewart and Osborne, exclusive of Lake Temiscaming and tributaries.
A. B. Messecar ..	Burford.....	County of Brant, comprising Tps. of Burford, Oakland and Brantford, west of Grand River, but exclusive of said river.
David Mair	Lanark	Tps. of Drummond, Lanark, Darling and Lavant, Co. Lanark.
J. Massales	Haliburton	Pro. Co. of Haliburton, exclusive of Lutterworth Tp.
R. Menzies	Burke's Falls	Tps. of Lount, Machar, Laurier, Croft, Chapman, Strong, Jolly, Spence, Ryerson, Armour, Proudfoot, Monteith, McMurrich, Perry and Bethune, District of Parry Sound.
B. B. Miller.....	Wiarton,.....	North Bruce Peninsula.
F. J. Moore ...	Lakefield	Tps. of Druro, Drummer, east part of Smith, Tp. of Burleigh and east half of Harvey, Co. Peterboro'.
H. Moore.....	Huntsville.....	Tps. of Stephenson, Stisted, Chaffey, Sinclair and Brunel.
Jas. Myers.....	Orchard	Tps. of Proton, Egremont and Normondy, Co. Grey and Tps. Minto, Arthur and West Luther, Co. Wellington.
M. A. McAulay..	Southampton.	Co. Bruce fronting Lake Huron lying between Southampton and Tobermory Harbour.
G. D. McCall.....	Vittoria	County of Norfolk, and Tps. of Walpole and Rainham in County of Haldimand, also waters of Lake Erie in front of said Co. and Tps.
A. McComber ...	Port Arthur	District of Thunder Bay.
Neil McDougall .	Port Arthur.....	District of Thunder Bay.
S. R. McKewen..	Tehkummah.....	Manitoulin Island.
A. McIntyre.....	Keene	Tps. of Otonabee and Asphodel in Co. of Peterboro'.
Wm. McKirdy...	Nipigon	River and Lake Nipigon.
D. A. McNiven...	Barrie...	Tps. of Vespra, Innisfil, Essa and West Gwillimbury, Co. of Simcoe, including Holland River.
D. McNabb	Orillia.....	Tps. of Orillia and Oro, Co. of Simcoe, also over River Severn and Lakes Simcoe and Couchiching.
J. McRitchie.....	Bothwell.....	River Thames lying between the Villages of Louisville and Wardsville, also over any waters flowing into the River Thames between the said villages.
John Nash	Rat Portage.....	District of Rainy River lying west of the 7th meridian line, and for that portion of the Rainy River District between the 5th and 7th meridian, north of a line drawn from Silver Lake through Sakwite Lake, Cedar Rapids and Loon Lake to One Side Lake.
Thos. Nichols.....	Hall's Bridge.....	West half of Tp. of Smith, Tp. of Enniskore, west half Tp. Harvey, Tps. of Galway and Cavindish, Co. Peterboro'.
Thos. Norquay ...	Manitowaning....	Lake Manitou, Manitoulin Island.
Thos. B. Norris...	Bolingbroke	Tps. Bathurst and South Sherbrooke, Co. Lanark.
Charles O'Connor.	Long Point.....	Lyndhurst waters south of Lyndhurst; also South and Gananoqu Lakes.
Charles Ogg....	Hamilton	County of Wentworth.

SCHEDULE OF FISHERY OVERSEERS.—*Continued.*

Name.	Residence.	District.
R. Oliver.....	Little Current....	District of Algoma lying east of Algoma Mills, including Cockburn and Manitoulin Islands.
Simon Penassic....	Fort William.....	Pigeon River, in the District of Thunder Bay.
John Paul.....	Loring	Tps. of Harrison, Burton, McKenzie, Ferry, Wallbridge, Brown, Wilson, Mills, Pringle, Gurd, Himsworth, Nipissing, Paterson, Hardy, McConkey, Blair and Mowat, District of Parry Sound; also the waters and islands in front of the Tps. of Harrison and Wallbridge in said district.
John Perry.	Fort Francis.....	Rainy Lake and adjacent waters.
John Rennie.....	Napanee.....	Tps. of Richmond, Adolphustown, North and South Fredericksburg, with jurisdiction over Hay Bay and Bay of Quinte, in Co. Lennox and Addington.
Colin Robertson..	Hillsburg..	Tps. of Erin and West Garafraxa.
W. D. Roblin	Adolphustown....	Tps. of Adolphustown, South Fredericksburg, Ernestown and Amherst Island, Co. Lennox and Addington.
William Sargant..	Bronte.....	County of Halton, also Co. Wentworth north of the Canal, and Lake Ontario.
P. W. C. Shewen.	Apsley.....	Tps. of Anstruther and Chandos, Co. Peterboro.
Samuel Schell	Port Perry.....	Lake Scugog, lying southerly and easterly of the Scugog Bridge and southerly and westerly of the Cartwright Bridge.
J. G. Sing	Meaford.	Waters and Islands in Georgian Bay.
A. Skeen	Harwood.....	Tps. of Hamilton and Alnwick, Co. Northumberland, and over Rice Lake.
Wm. Smith	Gravenhurst.....	Lakes Muskoka, Roseau and Joseph, in the District of Parry Sound.
J. B. Smith	Charleston.....	Charleston Lake and tributaries, Co. Leeds.
P. T. Smith.....	Kemptville.....	Rideau River and tributaries, fronting on Co. of Grenville, Carleton and Lanark.
N. Stewart.....	Chesley.....	That portion of County Bruce lying south of Indian Reserve and Tp. of Amabel, with jurisdiction over Lake Huron in front of said Co. south of Southampton.
Wm. Stewart:....	Pelee Island	For Pelee Island and the other islands in Lake Erie, south of the Co. of Essex.
Jas. Stephen	Wiarton.....	Co. of Bruce fronting on Georgian Bay, lying east and south of Tobermory Harbor and Georgian Bay.
J. E. Stephens ...	Chatham.....	River Thames from Lewisville to its mouth, also the tributaries of said river between these points. Also the Tp. of Dover West, Co. Kent.
Jas. Steed.....	Sarnia.....	Co. Lambton exclusive of Walpole and St. Ann's islands.
John Steele	Uptergrove.....	Tps. of Thorah, Mara and Rama, Co. of Ontario.
Chas. Taylor	Westmeath.....	Ottawa River from Des Joachin to Fort Coulogne.
F. Terry	Queensville.....	North York, with jurisdiction over Holland River and that portion of Lake Simcoe lying in front of North Gwillimbury and Georgina Tps.
Alex. Trotter.....	Bobcaygeon	Tps. Verulam, County of Victoria and Harvey in the Co. of Peterboro.

SHEDULE OF FISHERY OVERSEERS.—*Concluded.*

Name.	Residence.	District.
H. M. Vanluven..	Yarker.....	Tp. of Camden East, Sheffield, Kaladar, in the County of Addington.
R. M. VanNorman	Sault Ste. Marie..	District of Algoma lying west of Algoma Mills, exclusive of Cockburn and Manitoulin Islands.
Adam Waddell....	Leith	Co. of Grey, exclusive of Tps. of Proton, Egremont and Normanby.
R. J. Walker.....	Port Credit.....	Lake Ontario, fronting Co. Peel and for Rivers Credit and Etobicoke, tributary to said lake.
W. J. Welch.....	Carleton Place....	Tps Torbolton, Fitzroy, Huntley, March and Goulbourn, Co. Carleton, and Tps. Beckwith, Drummond, Ramsay and Packenham, Co. Lanark.
P. J. Wensley...	Wensley.....	Tps. of Anglesea, Effingham, Ashby, Denbigh and Abbinger, in the County of Addington.
Jas. Whalen.....	Port Arthur.....	Rivers and streams emptying into Thunder Bay and Lake Superior, between Thunder Bay and Pigeon River.
J. H. Willmott....	Beaumaris.....	District of Muskoka.
Fred. Williams...	Rockport.....	In and for the River St. Lawrence lying between Jackstraw Light and Mallorytown Landing.
J. M. Willis	Port Whitby.....	Electoral District of South Ontario, exclusive of the Tp. of Reach.
C. W. Winacott.	Copenhagen	County of Elgin, exclusive of Thames River.
W. R. Wood	Toronto	Tp. of Etobicoke, York and Scarboro, and City of Toronto, Co. York.
Frank Worden....	Courtice	County of Durham.
James Yates	Goderich.....	County of Huron.
Jos. H. Yelland ..	Peterboro.....	River Otonabee and tributaries lying between Lakefield and Rice Lake, Co. Peterboro, also the waters of Rice Lake in front of South Monaghan Tp.

Statement of Revenue received from Fisheries Department during the year ended 31st December, 1903.

District.	Name.	Amount.	Total.
		$ c.	$ c.
Lake Nepigon	McKirdy, William	1,080 00	
Lake of the Woods and Rainy River Dist...	Nash, John	905 50	
	Perry, John	30 00	
Lake Superior	McComber, Alexander	1,235 00	
	Van Norman, R. M	1,763 00	
Lake Huron, North Channel	Oliver, Richard	3,121 00	
Georgian Bay	Howard, Patrick	315 00	
	Johnston, J. A	442 11	
	Labatt, Felix	55 00	
	Pratt, William	172 00	
	Stephens, James	241 50	
	Waddell, Adam	476 00	
	Free, John	24 00	
Lake Huron (proper) and River St. Clair....	McAuley, M. A	442 00	
	Stewart, Neil	67 00	
	Yates, James	625 00	
	Steed, James	3,486 88	
Lake St. Clair, Thames River and Detroit River.	Allan, Orlando	344 00	
	Cousineau, J. B	881 00	
	Stephens, John E	320 00	
	McRitchie, James	109 00	
	Crotty, John	4 50	
	Brown, E. H	30 00	
Lake Erie and Grand River	Lamarsh, Peter	2,513 60	
	Laird, J. K	4,825 00	
	Stewart, William	1,716 00	
	Wonnacott, C. W	3,555 00	
	McCall, Geo. D	1,993 01	
	Farrell, John	679 00	
	Couper, A	783 00	
	Ellis, Joseph	352 00	
Lake Ontario	Hadgraft, Robert	458 50	
	Ogg, Charles	207 00	
	Sargent, William	140 00	
	Walker, R. J	35 00	
	Wood, W. R	81 00	
	Willis, J. M	39 00	
	Freeman, Sylvanus	180 00	
	Clark, Marshall	178 00	
	Cattanach, Donald	225 00	
Bay of Quinte	McCargar, J. K	315 00	
	Roblin, W. D	107 50	
	Rennie, John	191 00	
Counties :—Frontenac, Leeds, Prescott, Russell, Carleton, Renfrew, Lanark, Grenville.	Clyde, George	487 00	
	Craig, William	86 00	
	Flynn, Robert	102 00	
	Donaldson, W. J	21 00	
	Bilton, George	282 73	
	Norris, Thomas B	16 00	
	Flood, A. J	124 50	
	O'Conner, C. J	7 00	
	Mair, David	20 00	
	Villeneuve, L. P	2 00	
	Duchesne, Hertel	42 50	
	Loveday, E. T	6 00	
	Barr, Henry	30 00	
	Taylor, Charles	11 00	
	Goulette, O. V	135 00	
	Welsh, W. J	20 00	
	Smith, P. J	65 00	
Peteborough, Northumberland, Victoria and other inland counties.	Brady, Nicholas	57 50	
	Dickson, John	20 00	
	Gillespie, C. S	405 00	
	Johnston, Francis	25 00	
	McIntyre, A. W	160 00	
	Van Luven, H. M	10 00	
	Carried forward	36,878 33	

Statement of Revenue.—*Concluded.*

District.	Name.	Amount.	Total.
			$ c.
	Brought forward	36,878 33	
	Wensley, P. J.	7 00	
	Yelland, J. H.	25 00	
River St. Lawrence	Driscoll, John	10 00	
Lake Simcoe	McNabb, Duncan	38 00	
	McNiven, D. A.	27 50	
Muskoka	Smith, William	35 00	
Nipissing	Armstrong, John	28 00	
	Legault, H. M.	2,242 10	
Unclassified		70 00	
Lease of Lakes		500 00	
			39,860 93
Refunds on account of Revenue :—			
E. H. Traves, 1900	Muskoka (fine)	10 00	
A. G. McKay, 1902	County Bruce (fine)	5 00	
C. B. Cronwell, 1902	" Norfolk (license fee)	2 00	
D. Jackson, 1902	" " (license fee)	1 00	
			18 00
			39,842 93

ONTARIO

Return of the number of fishermen, tonnage and value of tugs, vessels and boats, the during the

Number.	Districts.	Fishing material.								
		Tugs or vessels.				Boats.			Gill-nets.	
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Yards.	Value.
	Lake of the Woods and Rainy River District.			$			$			$
1	Lake of the Woods	4	100	8,000	10	13	1,350	46	22,000	3,080
2	Shoal Lake	....	.....	.....	.....	3	400	6	6,000	840
3	Big Sandy Lake	....	.....	.....	.....	1	50	2	2,000	280
4	Wabigoon "	....	.....	.....	.....	2	150	4	2,000	280
5	Crow "	....	.....	.....	.....	1	75	2	2,000	280
6	Canyon "	....	.....	.....	.....	1	75	2	1,000	140
7	Denmark "	....	.....	.....	.....	2	200	3	2,000	280
8	Stormy "	....	....	.....	.....	1	75	2	2,000	280
9	Rainy " etc	....	.....	.....	.....	4	300	8	4,700	500
10	District lying between the 5th and 7th meridian lines and south of a line running due east from One Side Lake to Whitefish Lake	....	.....	.....	.....	2	150	4	2,000	300
	Totals	4	100	8,000	10	30	2,825	79	45,700	6,260

Return of the number of fishermen, tonnage and value of tugs

Number.	District.	Herrings, salted.	Herring, fresh.	Whitefish.	Trout.	Bass.	Pickerel or Dore	Pike.
	Lake of the Woods and Rainy River District.	bls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Lake of the Woods	.....	.....	148,140	20,780	.....	87,100	44,900
2	Shoal Lake	.....	....	101,400	.....	....	22,200	14,050
3	Big Sandy Lake	.....	.....	2,000	10,000	.....	.....	.....
4	Wabigoon "	.....	.....	4,000	.....	.....	20,000	10,000
5	Crow "	.....	.....	8,000	2,000	.....	.....	.....
6	Canyon "	.....	.....	1,000	2,600	.....	.....	.....
7	Denmark "	.....	.....	10,400	3,700	.....	5,400	4,050
8	Stormy "	.....	.....	4,000	6,000	.....	.....	1,000
9	Rainy " etc	....	.....	50,000	50,000	.....	.....	5,000
10	District lying between the 5th and 7th meridian lines and south of a line running due east from One Side Lake to Whitefish Lake	....	.....	2,000	.....	.....	.....	200
	Totals	.....	.....	330,940	95,080	.....	134,700	79,200
	Values	.....	.....	33,094	9 508	.....	13,470	3,168

FISHERIES.

quantity and value of all fishing materials, also the kinds and quantities of fish caught year 1903.

Fishing material.									Other fixtures used in fishing.				
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers and wharves.		Number.
No.	Yards.	Value.	No.	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
....	.....	.....	12	2,500	21	1,575	.....	.....	3	2,000	1	500	1
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
....	.....	.....	12	2,500	21	1,575	....	.....	3	2,000	1	500	

vessels and boats, fishing material, etc.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tullibee.	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders.	Trout, salted.	Whitefish, salted.	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	bbls.	bbls.	$	
.....	31,000	.....	.....	5,200	165,500	.....	1,180	.....	.....	.....	44,138	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,922	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,200	3
.....	.....	.....	.....	8,000	.....	.....	.....	.....	.....	.....	3,280	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,000	5
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	360	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,112	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,040	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,200	9
.....	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	212	10
.....	31,050	.....	.....	13,200	165,500	.....	1,180	.....	.....	.....	76,464	
.....	2,484	.....	.....	792	13,240	.....	708	.....	.....	.....	76,464	

ONTARIO

Return of the number of fishermen, tonnage and value of tugs,

Number.	Districts.	Fishing material.								
		Tugs or vessels.				Boats.			Gill-nets.	
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Yards.	Value.
	Lake Superior.			$			$			$
1	Thunder Bay	10	76	6,800	36	37	2,505	52	200,700	11,560
2	Gros Cap	....	....	.....	.....	3	250	6	6,000	500
3	Slate Island	....	.....	.....	.....	1	100	2	1,000	100
4	Carribou Island	....	.....	... .	....	1	100	2	.....	.....
5	Michipicoten Island	....	....	.....	.....	6	1,000	11	5,000	150
6	Point Mamainse	1	10	2 000	6	....	.....	.....	20,000	1,500
7	Batchewana Bay	1	10	2,000	6	4	325	.....	9,100	725
8	Goulais "	....	... ..	.....	.....	6	475	12	6,600	580
9	Otter Head	..	... ..	.....	....	1	100	2	1,000	100
10	Lizzard Islands	3	30	19,000	36	7	1,060	43	91 000	8,675
11	Gargantua Harbor	....	.....	.....	.....	1	50	2	650	100
12	Parisian Island	....	.....	.....	.....	1	50	2	6,000	500
	Totals	15	120	29,800	84	68	6,015	134	347,050	24,490

Return of the number of fishermen, tonnage and value of tugs

Number.	Districts.	Herring, salted.	Herring, fresh.	Whitefish.	Trout.	Bass.	Pickerel or Dore.	Pike.
	Lake Superior.	brls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Thunder Bay	.....	29,500	294,200	892,800	.....	40,850	3,050
2	Gros Cap	.....	.....	13,500	19,200	.....	.....	.....
3	Slate Islands	.....	.....	....	3,700	.....	.....	.....
4	Carribou Island	....	.....	....	13,700	.....	.....	.....
5	Michipicoten Island	... .	....	14,000	20.200	.....	.....	.....
6	Point Mamainse	.....	.....	9,260	76,000	.....	.. ..	.....
7	Batchewana Bay	.....	.....	49,700	24,100	.....	....	.....
8	Goulais Bay	.....	.....	18,000	22,000	.....	250	100
9	Otter Head	....	.....	....	8,400	.....	.....	.....
10	Lizzard Islands	.....	.....	149,790	559,400	.....	3,700	300
11	Gargantua Harbor	.....	.....	1,000	500	.....	... .	.....
12	Parisian Island	.....	.....	14,500	1,600	. . ....	2,600	200
	Totals	....	29,500	563,950	1,641,600	. . ....	47,400	3,650
	Values	.....	$1,180	56,395	164,160	....	4,740	146

FISHERIES.

vessels and boats, fishing material, etc.—*Continued.*

Fishing material.									Other fixtures used in fishing.				Number.
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers and wharves.		
No.	Yards.	Value.	No.	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
....	.....	....	12	2,000	.....	.....	.....	.....	7	1,550	.....	.....	1
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
....	.....	.....	6	1,800	....	.....	.....	.....	1	1,000	.....	.....	5
....	.....	.....	.....	.....	....	.....	.....	.....	1	1,800	.....	.....	6
....	.....	.....	5	1,500	....	.....	.....	.....	1	500	.....	.....	7
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
....	.....	.....	5	1,500	.....	.....	.....	.....	8	9,500	....	.....	10
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
....	.....	.....	28	6,800	.....	.....	.....	.....	18	14,350	.....	.....	

vessels and boats, fishing materials, etc., for 1903.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tulibee.	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon Bladders.	Trout, salted.	Whitefish, salted.	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	brls.	brls.	$	
.....	2,850	.....	.....	.....	.....	4,200	.....	.....	193	.....	126,329	1
.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	3,270	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	370	3
.....	.....	.....	.....	.....	.....	.....	.....	....	....	.....	1,370	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,420	5
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,526	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7,380	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,029	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	840	9
.....	900	.....	.....	.....	.....	....	.....	.....	400	.....	75,373	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	150	11
.....	250	.....	.....	....	.....	.....	.....	.....	.....	.....	1,898	12
.....	4,000	.....	.....	.....	.....	4,200	.....	.....	593	.....	232,955	
.....	320	.....	.....	.....	.....	84	.....	....	5,930	.....	232,955	

ONTARIO

Return of the number of fisherman, tonnage and value of tugs

Number.	Districts.	Fishing Material.								
		Tugs or vessels.				Boats.			Gill-nets.	
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Yards.	Value.
	Lake Huron (North Channel).			$			$			$
1	Tenby Bay	....	.....	....	.....	1	50	1	1,100	50
2	Marksville	....	.....	.....	.....	1	400	2	3,000	300
3	Thessalon	1	8	1,500	3	7	580	10	600	75
4	Blind River	....	....	.....	.....	3	200	6	4 600	.....
5	Spragg	1	5	1,500	5	1	100	.....	.....	.....
6	Kagawong	1	12	2.000	4	....	.....	....	25,000	1,200
7	Little Current	1	12	1,100	6	2	300	.....	.....	.....
8	Gore Bay	1	20	1,500	6	1	100	2	.....	.....
9	Meldrum Bay	1	25	4,000	6	1	150	2	24,000	3,000
10	Cockburn Island	1	23	5,500	6	4	500	8	41,000	3,400
11	Ducks Islands	3	75	10,500	18	4	400	8	93,000	13,200
12	South Bay Mouth	2	40	4,000	12	4	400	8	72,000	2,000
13	Fitzwilliam Island	...	.....	.. ....	...	14	1,500	27	71,000	4,200
14	Squaw "	4	90	12,700	22	3	275	6	96,000	11,000
15	Killarney	3	80	8,000	18	45	6,050	134	294,900	19,740
16	Bustard Islands	2	36	8,000	12	26	2.340	53	187,100	11,905
	Totals	21	426	60,300	118	117	13,345	267	913,300	70,170

Return of the number of fishermen, tonnage and value of tugs

Number.	District.	Herring, salted.	Herring, fresh.	Whitefish.	Trout.	Bass.	Pickerel or Dore.	Pike.
	Lake Huron, (Northumberland).	bls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Tenby Bay	.....	.....	70	.....	.....	90	9,150
2	Marksville	20	.....	800	2,000	.....	200	2,000
3	Thessalon	.....	.....	49,150	23,100	....	30,050	4,700
4	Blind River	76	....	.....	.....	.....	....	.....
5	Spragg	.... ..	1,000	2,000	8,000	.....	106,800	500
6	Kagawong	.. ....	.....	20,490	59,150	.....	.....	.....
7	Little Current	..... .	.....	127,300	30,050	.....	25,150	9,500
8	Gore Bay	.....	.....	12,780	8,580	.....	30,590	450
9	Meldrum Bay	.....	.....	10,000	110,000	.....	28,000	.....
10	Cockburn Island	.....	... ..	35,000	152,000	....	4,600	1,700
11	Ducks Islands	.....	14,000	19,000	404,000	.....		... .
12	South Bay Mouth	.....	....	24,300	186,600	.....	6,000	....
13	Fitzwilliam Island	200	.. . ...	48,580	112,920	.....	....	....
14	Squaw Island	40	.....	111,960	177,680	.....	6,000	....
15	Killarney	359	.....	197,050	243,580	.....	279,670	2,550
16	Bustard Islands	945	..... .	153,500	196,000	.....	131,000	39,000
	Totals	1,640	15,000	811,980	1,713,660	.....	648,150	69,550
	Values	$13,120	600	81,198	171,366	....	64,815	2,782

FISHERIES.

vessels and boats, fishing material, etc.—*Continued.*

Fishing Material.									Other fixtures used in fishing.				
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers, and wharves.		Number.
No.	Yards.	Value.	No.	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
													1
													2
			11	2,300					1	100			3
													4
			8	1,600					1	100			5
													6
			15	2,400					2	200			7
			5	1,500					2	600			8
			4	1,000					1	250			9
			2	200									10
			5	600					1	300			11
													12
													13
													14
													15
													16
			50	9,600					8	1,550			

vessels and boats, fishing material, etc.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tullibee.	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders.	Trout, salted.	Whitefish, salted.	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	bls.	bls.	$	
						5,200					486	1
											540	2
	6,300					7,250	400				11,307	3
											608	4
	4,000				500						12,100	5
											7,964	6
	5,500						215				19,199	7
	1,800										5,357	8
	2,000										14,960	9
	2,650									100	20,440	10
									200		44,860	11
									80		22,580	12
									1,375		31,500	13
											29,884	14
					2,000				25		75,414	15
	5,200				2,000		200			3	57,896	16
	27,450				4,500	12,450	815		1,689	103	355,095	
	2,196				360	249	489		16,890	1,030	355,095	

ONTARIO

Return of the number of fishermen, tonnage and value of tugs,

Georgian Bay

Number.	Districts.	Fishing material.								
		Tugs or vessels.				Boats.			Gill-nets.	
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Yards.	Value.
	Georgian Bay Division.			$			$			$
1	Parry Sound	8	190	16,400	55	19	3,050	34	240,250	15,360
2	Waubashene	....	....	.....	....	7	1,000	14	20,000	2,000
3	Victoria Harbour	...	.....	.....	.....	10	1,870	23	11,650	3,310
4	Midland	....	.....	.....	.....	14	1,000	20	28,000	2,250
5	Penetanguishene	...	....	....	....	11	900	20	12,000	900
6	Collingwood	3	81	6,000	19	3	2,850	6	101,700	7,000
7	Owen Sound	6	112	17,400	31	38	2,595	67	227,500	11,480
8	Colpoy's Bay and Tobermorry	2	56	7,000	49	19	1,101	5	1,047,100	7,287
	Totals	19	439	46,800	154	121	14,366	189	1,688,200	49,527

Georgian Bay.—

Number.	Districts.	Herring, salted.	Herring, fresh.	Whitefish.	Trout.	Bass.	Pickerel or Dore.	Pike.
	Georgian Bay Division.	brls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Parry Sound	...	4,125	263,160	215,920	.....	4,250	8,050
2	Waubashene	32	4,100	4,000	5,070	.....	36,770	18,650
3	Victoria Harbour	1	2,200	31,600	10,000	.....	49,200	11,500
4	Midland	91	.....	40,000	45,000	.....	10,000	9 000
5	Penetanguishene	30	2,500	5,000	7,000	.....	1,000	3,000
6	Collingwood	54	57,800	9,100	127,650	.....	.....	.....
7	Owen Sound	3	6,150	111,100	512,930	.....	.....	.....
8	Colpoy's Bay and Tobermorry	1	2,100	3,120	289,620	.....	.....	.....
	Totals	212	78,975	467,080	1,213,190	.....	101,220	50,200
	Values	1,696	3,159	46,708	121,319	.....	10,122	2,008

Lake Huron

Number.	Districts.	Fishing material.								
		Tugs or vessels.				Boats.			Gill-nets.	
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Yards.	Value.
	Lake Huron (Proper).			$			$			$
1	Cape Hurd to Southampton	5	139	21,000	5	22	2,395	48	254,700	21,634
2	Southampton to Goderich	1	12	3,000	5	5	165	11	47,351	1,930
3	County of Huron, including Grand Bend division	2	46	4,500	12	17	1,665	38	64,500	6,850
4	Bosanquet Township	....	.....	.....	.....	5	900	12	4,500	500
5	Plympton	....	....	.....	.....	9	505	14	.....	.....
6	Sarnia	1	29	1,500	.....	22	1,525	32	880	20
	Totals	9	226	30,000	22	80	7,155	155	371,931	30,934

FISHERIES.

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Division.

Fishing material.									Other fixtures used in fishing.				
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers and wharves.		Number.
No.	Yards.	Value.	No.	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
									5	1,100	3	900	1
									3	2,500			2
									2	500	1	150	3
									2	500			4
									1	150	1	150	5
													6
									3	200			7
													8
									16	4,950	5	1,200	

Continued.

	Sturgeon.	Eels.	Perch.	Tullibee.	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders.	Trout, salted.	Whitefish, salted.	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	brls.	brls.	$	
					200				5		48,836	1
	1,550				850	17,350	125		7	5	6,484	2
	3,750				2,000	24,700	210				10,716	3
						2,600			207	38	13,080	4
									60	10	2,460	5
	17,900		10,000			1,000	4,600		117	12	22,221	6
						200			102		63,697	7
									22		29,586	8
	23,200		10,000		3,050	45,850	4,935		520	65	197,140	
	1,856		300		244	917	2,961		5,200	650	197,140	

(Proper).

Fishing material.									Other fixtures used in fishing.				
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers and wharves		Number.
No.	Yards.	Value.	No.	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
			2	300					11	3,100			1
									1	500			2
			20	3,250					7	435			3
			4	1,000									4
			15	2,900					1	500			5
			32	7,050					2	200			6
			73	14,500					22	4,735			

ONTARIO

Return of the number of fishermen, tonnage and value of tugs,

Lake Huron

Number.	District.	Herring, salted.	Herring, fresh.	Whitefish.	Trout.	Bass.	Pickerel or Dore.	Pike.
	Lake Huron (Proper).	brls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Cape Hurd to Southampton.	1,234	20,000	4,000	646,600	.....	.....	.....
2	Southampton to Goderich....	142	3,600	.....	182,100	.....	.....	400
3	County of Huron, including Grand Bend division	.....	48,750	13,380	197,780	.....	50,100	3,000
4	Bosanquet Township.....	.....	4,150	1,500	20,660	.....	29,980	.....
5	Plympton	.....	17,350	.....	170	.....	57,540	.....
6	Sarnia.....	5	28,875	750	1,500	.....	103,300	.....
	Totals.....	1,381	122,725	19,630	1,048,810	.....	240,920	3,400
	Values.....	$11,048	4,909	1,963	104,881	.....	24,092	136

Return of the number of fishermen, tonnage and value of tugs,

Number.	Districts.	Fishing material.									
		Tugs or vessels.				Boats.			Gill-nets.		
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	No.	Yards.	Value.
	Lake St. Clair.			$			$				$
1	River St. Clair.....	...	.....	.....	....	13	390	33			
2	Thames River	.....	.....	...	....	18	319	64	*30	88	.....
3	Lake St. Clair & Detroit River	3	13	1,700	5	85	2,495	161	*2	3	.....
	Totals.....	3	13	1,700	5	116	3,204	258	*32	91	.....

*Dip nets.

Return of the number of fishermen, tonnage and value of tugs

Number.	District.	Herring, salted.	Herring, fresh.	Whitefish.	Trout.	Bass.	Pickerel or Dore.	Pike.
	Lake St. Clair.	brls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	River St. Clair.....	.....	3,200	.....	.....	.....	138,350	2,100
2	Thames River	.....	.....	.....	.....	.....	33,470	2,025
3	Lake St. Clair & Detroit River	.....	650	17,750	.....	.....	56,050	19,650
	Totals.....	.....	*3,850	17,750	.....	.....	227,870	23,775
	Values.....	.....	$154	$1,775	.....	.....	$22,787	$951

FISHERIES.

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Proper.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tullibee.	Catfish.	Mixed and coarse fish	Caviare.	Sturgeon bladders	Trout salted.	Whitefish salted.	Value	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	brls.	brls.	$	
.....	3,000	.. ....	....	...	.....	10,000	900	...	345	4	80,202	1
.....	.....	.....	400	...	...	.....	.	....	370	.....	23,218	2
.....	3,300	.....	6,000	..	.....	22,850	15	....	.....	.....	29,106	3
.	1,800	... .	2,600	...	1,000	1,400	. ..		3	.....	5,740	4
.....	3,000	... ...	100	....	50	14,800	....	....	.....	.....	7,008	5
.....	15,425	....	500	..	200	19,350			....	..	13,402	6
.....	26,525	.....	9,600	.....	1,250	68,400	915	. ..	718	4	158,676	
.....	$2 122	... .	288	....	100	1,368	549	....	7,180	40	168,676	

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Fishing material.									Other fixtures used in fishing.				Number.
Seines.			Pound nets.		Hoop nets.		Night lines		Freezers and ice houses.		Piers and wharves.		
No.	Yards	Value.	No.	Value.	No.	Value.	No hooks	Value.	No.	Value.	No.	Value	
		$		$		$		$		$		$	
12	1,140	783	...	.....		.....	..	.....	2	400	..	.....	1
18	860	550	...	.....	...	.....	..	.....	.....	...	....	.....	2
27	3,180	2,400	8	2,025	95	5,700	6,600	176	28	3,140	3	475	3
57	5,180	3,733	8	2,025	95	5,700	6,600	176	30	3,540	3	475	

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tullibee	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders	Trout, salted.	Whitefish, salted.	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	brls.	brls.	$	
....	1,300	.....	2,700	.....	....	89,900	...	.....	...	.....	16,030	1
.....	.....	.....	.....	....	1,225	77,400		...	...	.....	5,074	2
. ..	41,600	100	41,300	.....	32 450	409,700	2,270	.....	.....	.....	24,907	3
.....	42,900	100	44,000	.....	33,675	577,000	2,270	.. ..	. .....		$46.021	
.....	$ 3,432	6	1,320	.....	2,694	11,540	1,362	.....	.....	.....	46.021	

ONTARIO

Return of the number of fishermen, tonnage and value of tugs,

Number.	Districts.	Fishing material.									
		Tugs or vessels.				Boats.			Gill nets.		
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	No.	Yards.	Men.
	Lake Erie.			$			$				$
1	Pelee Island	4	90	12,900	40	13	960	25	.....	22,600	3,300
2	County Essex	2	50	9,400	7	49	5,000	64	....	4,700	410
3	do Kent	1	50	12,000	10	67	8,090	101	..	.....	.....
4	do Elgin	7	50	15,550	13	52	6,690	111	.....	60,040	5,420
5	Houghton and Long Point.	4	41	13,000	14	25	845	41	.....	81,600	5,995
6	Port Rowan Bay	....	.....	...	....	8	250	28	.....	.....	.....
7	Normandale	....	...	.....	.....	30	2,455	70	.....	15,260	734
8	East of Port Dover	3	18	4,475	14	13	1,022	22	....	31,200	1,483
9	Cayuga to and including Grand River	4	66	15,500	25	10	255	15	.....	4,600	8,000
10	Port Maitland to Port Colbourne	3	44	5,900	13	17	595	30	... ..	16,700	895
11	Port Colbourne to Niagara Falls	....	.. ..	.....	.... .	27	1,185	31	.....	16,400	1,475
	Totals	28	409	88,725	136	314	27,347	538	.....	253,100	27,712

Return of the number of fishermen, tonnage and value of tugs

Number.	District.	Herring, salted.	Herring, fresh.	White fish.	Trout.	White Bass.	Pickerel or Dore.	Pike.
	Lake Erie.	brls.	lbs	lbs.	lbs.	lbs.	lbs.	lbs.
1	Pelee Island	.....	154,150	24,050	.....	.....	8,900	27,175
2	County Essex	....	93,500	41,700	.....	... .	96,730	256,150
3	do Kent	.....	411,250	22,800	.....	1,400	320,770	481,200
4	do Elgin	.....	416,650	39,050	.... .	.....	345,150	13,550
5	Houghton and Long Point	....	153,000	27,550	60	600	54,510	2,950
6	Port Rowan Bay	.....	450	.....	.....	2,150	14,250	2,850
7	Normandale	.....	14,750	250	.....	1,750	28 250	5,550
8	East of Port Dover	.....	236,825	42,800	1,140	150	126,900	700
9	Cayuga to and including Grand River	.....	171,000	77,300	100	...	42.950	....
10	Port Maitland to Port Colbourne	.....	71,200	27,550	1,570	. . ..	65,850	26,050
11	Port Colbourne to Niagara Falls	.....	2,650	230	....	.....	14,120	48,450
	Totals	.....	1,725,425	303,280	2 870	6,050	1,118,380	864,625
	Values	....	$69,017	30,328	287	484	111,838	34,585

FISHERIES.

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Fishing material.									Other fixtures used in fishing.				
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers and wharves.		
No.	Yards	Value.	No.	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	Number.
		$		$		$		$		$		$	
1	132	40	20	6 300	2	180	1,000	10	5	1,900	...	.....	1
3	150	100	62	23,400	4	175	.....	.....	20	4,690	....	.....	2
4	1,200	250	93	30,800	.....	.....	.....	.....	48	16,240	.....	.....	3
....	.....	.....	79	21,800	....	.....	.....	.....	33	8,700	....	.....	4
6	2,300	625	9	2,950	.....	.....	1,200	12	9	5,015	.....	.....	5
7	2,800	870	.....	.....	.....	.....	.....	.....	.....	.....	....	.....	6
10	3,880	1,375	....	.....	.....	.....	.....	.....	3	65	.....	.....	7
....	.....	.....	17	4,250	.....	.....	.....	.....	9	1,930	.....	.....	8
5	355	210	5	1,300	.....	.....	.....	.....	6	300	.....	.....	9
....	.....	.....	16	2,800	...	.....	.....	.....	10	1,600	.....	.....	10
...	....	.....	4	120	....	.....	6,500	39	.....	.....	.....	.....	11
36	10,817	3,470	305	93,720	6	355	8,700	61	143	40,440	.....	.....	

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tullibee.	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders.	Trout, salted.	Whitefish, salted.	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs	lbs.	lbs.	lbs.	No.	brls.	brls	$ c.	
.. ...	4,600	....	13,900	...	9,175	37,400	320	.....	....	...	13,007	1
....	13,600	.. ..	87,100	...	7,900	152,600	1,020	....	...	..	35,826	2
.....	10,000	.....	82,600	...	1,100	62,350	470	50	....	....	75,102	3
.....	11,650	.....	34,000	.....	7,050	52,450	450	....	....	....	59,463	4
... ..	650	.....	29,900	....	10,450	117,400	225	.....		...	18,766	5
.....	.....	.....	15,000	2,500	5,100	62,750	.... ..	.....	.....	..	3,992	6
....	.. ....	...	53,900	50	750	144,950	....	...	...	....	8,381	7
.....	17,200	....	25,000	....	100	20,850	500	100	.....	....	29,528	8
.....	18,450	...	35,100	....	50	50,300	300	20	....	...	22,610	9
.....	27,900	.....	38,200	....	200	61,500	1,370	...	...	...	18,833	10
.	30,800	...	3,500	...	250	21,500	2,060	390		..	8.046	11
.....	134,850	.....	418.200	2,550	42,125	784,050	6,715	560	...	..	293,554	
. .	10,788	....	12,546	153	3,370	15,681	4,029	448	....	...	293,554	

ONTARIO

Return of the number of fishermen, tonnage and value of tugs,

Number.	Districts.	Fishing material.								
		Tugs or vessels.				Boats.			Gill-nets.	
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Yards.	Value.
	Lake Ontario.			$			$			$
1	Queenston	..	..	..	..	..	..	..	..	..
2	Niagara	1	5	1,000	4	13	1,080	25	45,680	1,830
3	Port Dalhousie	2	14	15,000	8	18	3,020	40	63,900	2,915
4	Louth	..	..	..	..	16	690	19	6,150	250
5	Clinton	..	..	..	..	5	600	7	7,700	305
6	Grimsby	..	..	..	..	3	1,200	6	1,600	60
7	Burlington Beach	..	..	..	..	11	950	20	40,300	1,800
8	County of Halton	..	..	..	..	19	3,080	41	75,000	4,140
9	do Peel	..	..	..	..	3	600	5	10,000	840
10	do York	1	3	700	2	14	1,605	16	36,000	2,240
11	County of Ontario, exclusive of Township of Reach	1	3	600	2	5	210	10	9,350	335
12	Counties of Durham & Northumberland	..	..	..	..	19	1,052	30	24,365	1,457
13	Rice Lake and Trent River	..	..	..	..	31	339	50	..	..
14	Prince Edward County	1	20	250	3	30	1,150	63	17,600	828
15	Bay of Quinte	..	..	..	..	19	485	32	2,600	60
16	Lennox Co. and Napanee River	..	..	..	..	17	315	24	60	10
17	Amherst Island and vicinity	..	..	..	..	31	773	40	18,400	454
18	Wolfe Island and vicinity	..	..	..	..	17	575	29	4,000	175
	Totals	6	45	17,550	19	271	17,724	457	362,705	18,289

Return of the number of fishermen, tonnage and value of tugs,

Number.	District.	Herring, salted.	Herring, fresh	Whitefish.	Trout.	Bass.	Pickerel or Dore.	Pike.
	Lake Ontario.	bbls	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Queenston	..	100	..	..	..	2,800	..
2	Niagara	..	132,000	5,030	..	..	26,810	..
3	Port Dalhousie	..	216,900	60	20	..	7,350	200
4	Louth	..	22,200	..	..	..	650	550
5	Clinton	..	39,100	..	..	..	..	..
6	Grimsby	..	85,600	2,000	13,200	..	..	..
7	Burlington Beach	..	142,600	19,500	2,600	..	200	7,500
8	County of Halton	..	148,500	..	4,000	..	..	..
9	do Peel	..	6,000	3,000	5,500	..	..	300
10	do York	..	112,000	6,750	3,300	..	100	200
11	County of Ontario, exclusive of Township of Reach	..	16,800	2,200	540	..	..	400
12	Counties of Durham & Northumberland	..	96,100	4,800	9,800	..	200	30,000
13	Rice Lake and Trent River	..	..	..	..	..	..	1,500
14	Prince Edward County	..	55,200	6,440	24,700	..	12,200	114,800
15	Bay of Quinte	..	10,000	20,000	..	..	8,000	140,000
16	Lennox Co. and Napanee River	..	..	..	..	..	..	10,500
17	Amherst Island and vicinity	5	4,900	22,750	4,100	..	1,200	25,950
18	Wolfe Island and vicinity	..	..	4,450	3,500	..	2,000	13,600
	Totals	5	1,087,400	96,980	71,260	..	61,510	345,500
	Values	$40	43,496	9,698	7,126	..	6,151	13,820

FISHERIES.

vessels and boats, fishing materials, etc., for 1903.

Fishing material.									Other fixtures used in fishing.				Number.
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice-houses.		Piers and wharves.		
No.	Yards	Value.	No.	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
....	.... ..	.....	†3	275	....	.....	.... .	.....	.....	.....	.....	.....	1
...	.....	.....	. .	....	.....	.....	.....	.....	1	50	.....	.....	2
. .	.....	... ...	.....	.....	...	.....	... ...	.....	.....	... .	.....	.....	3
....	.....	.... ..	.....	....	....	.....	.....	.. ..	.....	.....	.....	.....	4
....	.....	.....	.....	.....	...	.... ..	.....	.....	.....	....	....	.....	5
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	6
....	.....	....	*117	117	..	.....	.....	....	9	1,625	.....	....	7
....	.....	.....	....	.....	.....	.....	.....	....	14	1,005	.....	.....	8
...	.....	.....	.....	.....	.....	.....	100	50	.....	...	....	.....	9
4	400	125	...	.....	.....	.. ..	.....	... .	1	600	....	.....	10
....	.....	.....	.....	.....	.....	....	.....	.....	...	.....	.....	... ..	11
.	.... ..	.....	.....	.....	8	160	.... .	.....	.....	.....	.....	....	12
...	. ...	.....	.. ..	.....	96	1,807	.....	.. .. ..	13	305	.....	.....	13
2	650	310	.. ..	... ..	16	280	.....	.....	3	455	.....	.....	14
	.....	.....	.....	.. ...	49	400	.....	.....	.....	.....	.....	.....	15
....	.....	.. ..	.....	.. ..	37	690	.....	....	.....	.....	.....	.....	16
....	... ..	.....	..	.....	7	135	.....	....	.....	.....	...	.....	17
....	.....	.... ..	.....	.....	34	575	.....	.....	2	75		.....	18
6	1,050	435	.....	.....	247	3,987	100	50	43	4,115	... .	.....	

† Machines. * Spears.

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tullibee.	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders	Trout, salted.	Whitefish, salted	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs	No.	brls.	brls.	$	
....	1,500	.....	5,000	....	....	2,000	....	....	.....	.	594	1
....	.....	.....	4,200	....	....	....	.....	.....	....	.....	8,590	2
....	.. ....	.....	5,600	....	100	6,200	....	.....	.....	.....	9,727	3
..	.....	.....	2 000	.....	1,000	350	...	....	... ..	.....	1,122	4
....	.....	.....	6,200	....	.....	.....	.	.....	.....	....	1,750	5
....	.... ..	.....	.... ..	.....	.....	.....	.....	.....	....	...	4,920	6
.. .	.....	.....	8,700	.....	3,000	11,600	...	....	.....	.	8 967	7
....	.....	.....	.... ..	.....	....	20,000	.....	.....	.....	....	6.740	8
....	.....	700	500	.....	400	2 350	.....	.....	.....	...	1,238	9
....	.....	.....	1,700	..	2,000	9,200	.....	.	....	....	5 898	10
....	.. ..	.....	300	....	.....	.....	.....	.. ..	.....	...	971	11
....	.....	.....	5,900	.....	10,500	31,700	....	.....	.....	.....	8,175	12
....	.. ....	1,150	9,900	.....	54,600	23,250	.....	....	...	.....	5,259	13
	4,300	...	137,300	.....	65 100	168,050	....	.....	..	.....	24,166	14
....	1,000	30,000	90,000	..	55,000	95,000	.	...	.....	...	19,680	15
....	.....	.. ..	29,300	....	58,40	11,350	.....	....	2	....	6,218	16
....	2,700	....	28,000	.....	7.550	4.650	...	.....	.....	....	5 832	17
....	2,000	6,000	25,500	6,500	28,500	13,400	....	....	.....	....	5,762	18
....	11,500	37,850	360,100	6,500	286,150	399,100	.....	.....	2	....	125,609	
....	920	2,271	10.803	390	22,892	7,982	.....	.....	20	.....	125,609	

ONTARIO

Return of the number of fishermen, tonnage and value of tugs.

Number.	Districts.	Fishing material.									
		Tugs or vessels.				Boats.			Gill nets.		
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	No	Yards.	Men.
1	Frontenac County	....	.....	.....	.....	109	1,270	170	....	5,194	844
2	Leeds and Lanark	....	.....	.....	....	39	387	65	....	510	54
3	Prescott, Russell and Carleton Counties	1	10	300	1	29	883	35	....	1,050	120
4	Renfrew County	....	... ..	.....	....	53	326	58	....	1,580	195
5	Nipissing District	3	10	3,100	11	21	1,000	35	....	14,500	900
6	Muskoka do	....	....	. ..	.....	2	31	3	...	600	.....
	Totals	4	20	3,400	12	253	3,897	366	....	23,434	2,113

Return of the number of fishermen, tonnage and value of tugs,

Number.	District.	Herring, salted.	Herring, fresh.	Whitefish.	Trout.	Bass.	Pickerel or Dore.	Pike.
		brls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Frontenac County	30½	5,825	10	300	.....	170	61,350
2	Leeds and Lanark	.. ....	2,750	.....	....	....	.....	8,800
3	Prescott, Russell and Carleton Counties	.. ....	.....	50	.....	.....	4,070	7,775
4	Renfrew County	..	.. .	200	150	.....	800	6,150
5	Nipissing District	.....	15,950	20,600	.....	... .	18,010	15,350
6	Muskoka do	..	750	320	390	.....	1.340	.... ..
	Totals	30½	25,275	21 180	840	.....	24,390	99,425
	Values	$244	1.011	2,118	84	.....	2,439	3,977

FISHERIES.—*Continued.*

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Fishing material.									Other fixtures used in fishing.				
Seines			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers and wharves.		Number.
No.	Yards	Value.	No	Value.	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
....	.....	.....	....	.. ...	68	1,477	.....	.....	1	2,500	.. .	.... ..	1
1	12	20	....	.....	68	1,325	.....	. ...	6	214	1	25	2
....	.....	.....	....	..... .	18	330	1,800	69	15	235	.....	....	3
....	... ..	.... ..	.....	.....	....	.....	.....	.....	.....	.....	.....	....	4
....	.....	....	12	3,100	.	.....	... ..	.....	2	2,400	.....	.....	5
....	.....	..	...	. ....	....	..	.....	.....	.....	.....	.....	.....	6
1	12	20	12	3,100	154	3,132	1,800	69	24	5,349	1	25	

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Maskinonge.	Sturgeon.	Eels.	Perch.	Tullibee.	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders.	Trout, salted.	Whitefish, salted.	Value	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	brls.	brls.	$	
.....	..... .	.....	18,400	.....	84,750	37,350	....	....	....	...	11,058	1
.....	... ...	.....	7,200	.. ....	60,950	7,200	.....	.....	....	.....	5,698	2
.....	1,500	.....	1,000	.....	17,825	21,400	..	.....	...	....	2,727	3
.....	25	.....	200	....	1,975	1 300		.....	....	..	553	4
.....	191,250	.....	.....	.....	.....	22,600	13,720	150	2	...	29,237	5
....	....	.....	. ..	.....	.	6,100		...	...	.....	357	6
.	192,775	.....	26,800	.....	165,500	95,950	13,720	150	2	....	49,630	
....	15,422	.. ....	804	.. ....	13,240	1,919	8,232	120	20	....	49,630	

ONTARIO

Recapitulation of the number of fishermen, tonnage and value of tugs,

Number.	Districts.	Fishing material.									
		Tugs or vessels.				Boats.			Gill nets		
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	No.	Yards.	Value.
				$			$				$
1	Lake of the Woods and Rainy River District...	4	100	8,000	10	30	2,825	79	.....	45 700	6,260
2	Lake Superior.....	15	120	29,800	84	68	6,015	134	.....	347,050	24,490
3	Lake Huron (N. channel).	21	426	60,300	118	117	13,345	267	.....	913,300	70,170
4	Georgian Bay.	19	439	46,800	154	121	14,366	189	.....	1,688,200	49,527
5	Lake Huron (proper).....	9	226	30,000	22	80	7,155	155	.....	371,931	30,934
6	Lake and River St. Clair and Thames River.....	3	13	1,700	5	116	3,204	258	§32	.....	§91
7	Lake Erie and Grand River.....	28	409	88,725	136	314	27,347	538	....	253,100	27,712
8	Lake Ontario.....	6	45	17,550	19	271	17,724	457	.....	362,705	18,289
9	Frontenac County	....	.....	.....	....	109	1,270	170	.....	5,194	844
10	Leeds and Lanark County	....	.....	.....	.....	39	387	65	....	510	54
11	Prescott, Russell and Carleton Counties.....	1	10	300	1	29	883	35	.....	1,050	120
12	Renfrew County.....	....	.....	... .	...	53	326	58	.....	1,580	195
13	Nipissing District.....	3	10	3,100	11	21	1,000	35	....	14,500	900
14	Muskoka District.....	....	.....	.....	....	2	31	3	.....	600	..
	Totals.....	109	1,798	286,275	560	1,370	95,878	2,443	....	4,005,420	229,495

§ Dip nets

Recapitulation of the number of fishermen, tonnage and value of tugs,

Number.	District	Herring, salted.	Herring, fresh.	Whitefish.	Trout.	White bass.	Pickerel or Dore.	Pike.	Maskinonge.
		brls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Lake of the Woods and Rainy River District...	.....	....	330.940	95,080	.....	134,700	79,200	. ..
2	Lake Superior.	.....	29,500	563,950	1,641,600	.....	47,400	3,650	....
3	Lake Huron (N. channel)-	1,640	15,000	811 980	1,713,660	....	648,150	69,550	....
4	Georgian Bay.....	212	78,975	467,080	1,213,190	...	101,220	50,200	....
5	Lake Huron (proper).....	1,381	122,725	19,630	1,048,810	.....	240,920	3,400	....
6	Lake and River St. Clair and Thames River.....	..... .	3,850	17,750	... .	....	227,870	23,775	....
7	Lake Erie and Grand River	.... ..	1,725,425	303,280	2,870	6,050	1,118,380	864,625	....
8	Lake Ontario.....	5	1,087,400	96,980	71,260	....	61,510	345,500	....
9	Frontenac County	30½	5,825	10	300		170	61,350	....
10	Leeds and Lanark County	.... ..	2,750	....	.....	...	.....	8,800	....
11	Prescott, Russell and Carleton Counties.....	.....	.....	50	.....	.....	4,070	7,775	...
12	Renfrew County... .	.....	....	200	150	.....	800	5,150	....
13	Nipissing District..	....	15,950	20,600	.....	.....	18,010	15,350	....
14	Muskoka District.....	.. ..	750	320	390		1,340	... .	....
	Totals.....	3,268½	3,088,150	2,632,770	5,787,310	6,050	2,604,540	1,539,325	....
	Values	$26,148	123,526	263,277	578,731	484	260,454	61,573	....

FISHERIES.—*Continued.*

vessels and boats, fishing material, etc., for 1903.

Fishing material.									Other fixtures used in fishing.				
Seines.			Pound nets.		Hoop nets.		Night lines.		Freezers and ice houses.		Piers and wharves.		Number.
No	Yards.	Value.	No.	Value	No.	Value.	No. hooks.	Value.	No.	Value.	No.	Value.	
		$		$		$		$		$		$	
....	.....	.....	12	2,500	21	1,575	.....	.....	3	2,000	1	500	1
....	.....	.....	28	6,800	....	.....	.....	.....	18	14,350	.....	.....	2
....	.....	.....	50	9,600	....	..	.....	.....	8	1,550	....	....	3
....	.....	.....	..	.....	..	.....	.....	.....	16	4,950	5	1,200	4
....	.....	.....	73	14,500	..	.....	.....	.....	22	4,735	....	.....	5
57	5,180	3,733	8	2,025	95	5,700	6,600	176	30	3,540	3	475	6
36	10,817	3,470	305	93 720	6	355	8,700	61	143	40,440	....	.....	7
6	1,050	435	*117	*117	247	3,987	100	50	43	4,115	†3	†275	8
....	.....	.....	....	.....	68	1,477	.....	..	1	2,500	....	.....	9
1	12	20	....	..	68	1,325	..	.....	6	214	1	25	10
....	.....	.....	...	..	18	330	1,800	69	15	235	.....	.....	11
....	.....	.....	..	..	..	.....	..	.....	.....	.....	.....	.....	12
....	.....	.....	12	3,100	....	.....	.....	.....	2	2 400	.....	.....	13
...	.....	.....	....	..	..	.....	..	.....	....	.....	...	....	14
100	17,059	7,658	488	132,245	523	14,749	17,200	356	307	81,029	10	2,200	

* Spears. † Machines.

vessels and boats, fishing material, etc., for 1903.—*Continued.*

Sturgeon.	Eels.	Perch.	Tullibee	Catfish.	Mixed and coarse fish.	Caviare.	Sturgeon bladders	Trout, salted.	Whitefish, salted.	Value.	Number.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	No.	brls.	brls.	$	
31,050	.....	.....	13,200	165,500	.....	1,180	.....	..	...	76,464	1
4,000	.....	.....	.....	..	4,200	.....	.....	593	.....	232,956	2
27,450	.....	....	.....	4,500	12,450	815	.....	1,689	103	355,695	3
23,200	.....	10,000	.....	3,050	45,850	4,935	.....	520	65	197,140	4
26,525	....	9,600	..	1,250	68,400	915	...	718	4	158,676	5
42,900	100	44,000	.. ....	33,675	577,000	2,270	..	.....	.....	46,021	6
288,850	.....	418,200	2 550	42,125	784,050	6,715	560	...	.....	305,874	7
11,500	37,850	360,100	6,500	286,150	399,100	.....	..	2	.....	125,609	8
.....	.....	18,400	.....	84 750	37,350	.....	....	...	...	11,058	9
.....	.....	7,200	.....	60,950	7,200	.....	....	.....	.....	5,698	10
1,500	.....	1,000	.....	17 825	21,400	.....	.....	.....	....	2,727	11
25	.....	200	... ...	1,975	1,300	.....	....	.....	.....	553	12
191,250	.....	.....	.....	.....	22,600	13,720	150	2	...	29,237	13
...	.....	.....	.....	.....	6,100	.. ....	.....	.....		357	14
648,250	37,950	868,700	22,250	701,750	1,987,000	30,550	710	3,524	172	1,547,464	
$51,860	2,277	26,061	1,335	56,140	39 740	18,330	568	35, 240	1,720	1,547,464	

Comparative Statement of Yield 1902, 1903, According to Districts.

		1902.	1903	Increase.	Decrease.
Lake of the Woods and Rainy River district:					
Whitefish	lbs.	263,970	330,940	66,965	
Trout	"	61,504	95,080	33,576	
Pickerel	"	207,174	134,700		72,474
Pike	"	51,341	79,200	27,859	
Maskinonge	"				
Sturgeon	"	44,099	31,050		13,049
Perch	"				
Tullibee	"	4,323	13,200	8,877	
Catfish	"	240,739	165,500		75,239
Coarse fish	"				
Caviare	"	1,853	1,180		673
Bladders	"	128			128
Lake Superior:					
Herring	lbs.	105,220	29,500		75,720
Whitefish	"	398,943	563,950	165,007	
Trout	"	1,333,816	1,641,600	307,784	
Pickerel	"	35,205	47,400	12,195	
Pike	"	3,060	3,650	590	
Sturgeon	"	5,860	4,000		1,860
Perch	"				
Coarse fish	"	980	4,200	3,220	
Caviare	"				
Trout	bbls.	226½	593	366½	
Whitefish	"	151			151
Lake Huron, N.C.:					
Herring	bbls.	529	1,640	1,111	
"	lbs.	25,200	15,000		10,200
Whitefish	"	1,149,150	811,980		337,170
Trout	"	1,217,205	1,713,660	496,455	
Pickerel	"	569,776	648,150	78,374	
Pike	"	71,650	69,550		2,100
Sturgeon	"	18,180	27,450	9,270	
Perch	"	295			295
Catfish	"	2,745	4,500	1,755	
Coarse fish	"	26,430	12,450		13,980
Caviare	"	12,119	815		11,304
Trout	bbls.	20	1,689	1,669	
Whitefish	"	50	103	53	
Georgian Bay.					
Herring	bbls.	1,837	212		1,625
"	lbs.	121,200	78,975		42,225
Whitefish	"	456,290	467,080	10,790	
Trout	"	1,400,470	1,213,190		187,280
Pickerel	"	95,850	101,220	5,370	
Pike	"	18,570	50,200	31,630	
Sturgeon	"	28,240	23,200		5,040
Perch	"	9,000	10,000	1,000	
Catfish	"	2,190	3,050	860	
Coarse fish	"	27,600	45,850	18,250	
Whitefish	bbls.	30	65	35	
Trout	"	253	520	267	
Caviare	"	5,600	4,935		665
Lake Huron (proper):					
Herring	bbls.	940	1,381	441	
"	lbs.	250,155	122,725		127,430
Whitefish	"	16,818	19,630	2,812	
Trout	"	1,002,007	1,048,810	46,803	
Pickerel	"	318,570	240,920		77,650
Pike	"		3,400	3,400	
Sturgeon	"	51,250	26,525		24,725
Perch	"	6,358	9,600	3,242	
Catfish	"	870	1,250	380	
Coarse fish	"	119,184	68,400		50,784
Caviare	"	836	915		79
Whitefish	bbls.	1	4	3	
Trout	"	640	718	78	

Comparative Statement of Yield 1902, 1903, According to Districts.—*Con.*

		1902.	1903.	Increase.	Decrease.
River St. Clair:					
Whitefish	lbs.	1,000			1,000
Herring	bbls.		3,200	3,200	
"	lbs.	4,800			4,800
Eels	"				
Pickerel	"	104,350	138,350	34,000	
Pike	"		2,100	2,100	
Sturgeon	"	1,090	1,300	210	
Perch	"	5,000	2,700		2,300
Catfish	"				
Coarse fish	"	53,420	89,900	36,480	
Caviare	"				
Lake St. Clair and Detroit River:					
Herring	lbs.	850	650		200
Whitefish	"	38 000	17,750		20,250
Pickerel	"	52 850	56,050	3,200	
Pike	"	21,250	19,650		1,600
Sturgeon	"	40,650	41,600	950	
Perch	"	44,250	41,300		2,950
Tullibee	"				
Catfish	"	42,750	32,450		10,300
Coarse fish	"	385,800	409,700	23,900	
Caviare	"	1,382	2,270	888	
Eels	"		100	100	
Thames River:					
Pickerel	lbs.	29,656	33,470	3,814	
Pike	"	886	2,025	1,139	
Sturgeon	"				
Perch	"				
Tullibee	"				
Catfish	"	541	1,225	684	
Coarse fish	"	83,962	77,400		6,562
Lake Erie:					
Herring	bbls.				
"	lbs.	2,517,175	1,725,425		791,750
Whitefish	"	449,886	303,280		146,606
Trout	"	863	2 870	2,007	
Bass (white)	"	3 300	6,050	2,750	
Pickerel	"	1,455,239	1,118,380		336,859
Pike	"	1,073,522	864,625		208,897
Sturgeon	"	145,373	134,850		10,523
Perch	"	566,390	418,200		148,190
Tullibee	"	500	2,550	2,050	
Catfish	"	34,390	42,125	7,735	
Coarse fish	"	674,214	784,050	109,836	
Caviare	"	9,524	6,715		2,809
Sturgeon bladders	"	78	560	482	
Lake Ontario:					
Herring	bbls.	1,000	5		995
"	lbs.	2,032,919	1,087,400		945,519
Whitefish	"	77,071	96,980	19,909	
Trout	"	64,675	71,260	6,585	
Pickerel	"	48,165	61,510	13 345	
Pike	"	366,674	345,500		21,174
Sturgeon	"	13,908	11,500		2,308
Eels	"	65,288	37,850		27,438
Perch	"	546,871	360,100		186,771
Catfish	"	269 282	286,150	16,868	
Coarse fish	"	500,013	399,100		100,913
Caviare	"	448			448
Bladders	"	100			100
Tullibee	"	45,200	6,500		38,700
Trout	"	10	2		8
Nipissing District:					
Herring	bbls.				
"	lbs.	1,320	15,950	14,630	
Whitefish	"	500	20,600	20,100	
Trout	"				
Pickerel	"	1,725	18,010	16,285	
Pike	"	1,940	15,350	13,410	

Comparative Statement of Yield, 1902-1903, according to Districts.—*Con.*

		1902	1903	Increase.	Decrease.
Nipissing District.—*Con.*					
Catfish	lbs	200			200
Sturgeon	"	128,600	191,250	62,650	
Perch	"				
Coarse fish	"	2,645	22,600	19,955	
Caviare	"	13,212	13,720	508	
Bladders	"	62½	150	87½	
Trout	"		2	2	
Inland waters:					
Herring	bbls	15½	13½	2	
"	lbs	22,515	9,325		13,190
Whitefish	"	9,037	580		8,457
Trout	"	37,028	840		36,188
Pickerel	"	12,395	6,380		6,015
Pike	"	111,937	84,075		27,862
Sturgeon	"	15,334	1,525		13,809
Eels	"	7,950			7,950
Perch	"	117,700	26,800		90,900
Catfish	"	240,640	165,500		75,140
Coarse fish	"	193,566	67,250		126,316
Caviare	"				

Comparative Statement of the Yield of the Fisheries of the Province.

Kinds of Fish.		1902	1903	Increase	Decrease
Whitefish	lbs	2,860,670	2,632,770		227,900
" (salted)	"	48,500	34,400		14,100
Herring	"	5,081,354	3,088,150		1,993,204
" (salted)	"	864,400	653,700		210,700
Trout	"	5,117,568	5,787,310	669,742	
" (salted)	"	227,900	704,800	476,900	
Bass*	"	3,300	6,050	2,750	
Pickerel	"	2,930,355	2,604,540		325,815
Pike	"	1,720,830	1,539,325		181,505
Sturgeon	"	492,484	494,250	1,766	
Caviare	"	33,436	30,550		2,886
Eels	"	73,238	37,950		35,288
Perch	"	1,289,864	868,700		421,164
Catfish	"	843,721	701,750		141,971
Coarse fish	"	2,067,814	1,987,000		80,814
Tullibee	"	58,768	22,250		36,518
Bladders	"	368	710	342	
Total		23,714,570	21,194,205	1,151,500	3,671,865
Total Decrease 1903					2,520,365

NOTE.—Black Bass and Maskinonge being taken with hook and line only, no accurate return of the number taken is obtainable.

RECAPITULATION

Of fishing tugs, boats, nets, etc., employed in the Province for the year 1903.

Articles.	Value.
109 tugs, 1,798 tonage, 560 men	$286,275
1,370 boats, 2,443 men	95,878
4,005,420 yards of gill nets	225,495
100 seines, 17,059 yards	7,658
488 pound nets	132,245
523 hoop-nets	14,749
32 dip-nets	91
17,200 hooks and set lines	356
307 freezers and ice houses	81,029
10 piers and wharves	2,200
3 machines	275
117 spears	117
Total	$846,368

Statement of the yield and the value of the Fisheries of the Province for the year 1903.

Kind of Fish	Quantity.	Price.	Value.
		$ c.	$
Whitefish ..... bbls.	172	10 00	1,720
" ..... lbs.	2,632,770	10	263,277
Trout ..... bbls.	3 524	10 00	35,240
" ..... lbs.	5 787,310	10	578 731
Herring ..... bbls.	3,268½	08	26,148
" ..... lbs.	3,088,150	04	123,526
Bass (white) ..... "	6,050	08	484
Pickerel ..... "	2,604 540	10	260,454
Pike ..... "	1 539,325	04	61,573
Sturgeon ..... "	494,250	08	39,540
Caviare ..... "	30,550	60	18,330
Bladders ..... "	710	80	568
Eels ..... "	37,950	06	2 277
Perch ..... "	868,700	03	26,061
Catfish ..... "	701,750	08	56,140
Coarse fish ..... "	1,987,000	02	39,740
Tullibee ..... "	22,250	06	1,335
Total			$1,535,144

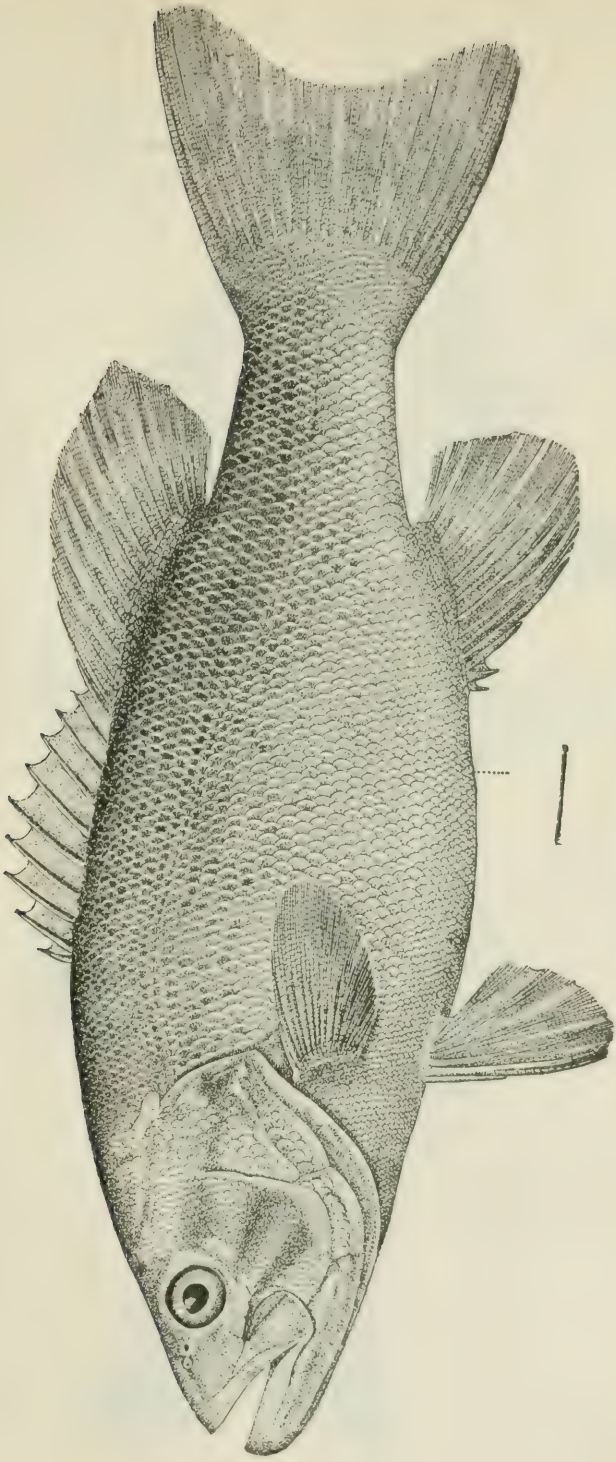
Value of Ontario Fisheries from 1870 to 1903, inclusive.

Years.	Value.	Years.	Value.
		Brought forward	$10,228,696
1870	$264,982	1887	1,581,850
1871	193,524	1888	1 839,869
1872	267,633	1889	1,963,123
1873	293,091	1890	2,009,637
1874	446,267	1891	1,806,389
1875	453,194	1892	2,042,198
1876	437,229	1893	1,694,930
1877	438,223	1894	1,659,968
1878	348,122	1895	1,584,473
1879	367,133	1896	1,605.674
1880	444,491	1897	1,289,822
1881	509,903	1898	1,433,631
1882	825 457	1899	1,477,815
1883	1,027,033	1900	1,333,293
1884	1,133,724	1901	1,428.078
1885	1,342,692	1902	1,265,705
1886	1,435,998	1903	1,535,144
Carried forward	$10,228,696	Total	$37,730,295

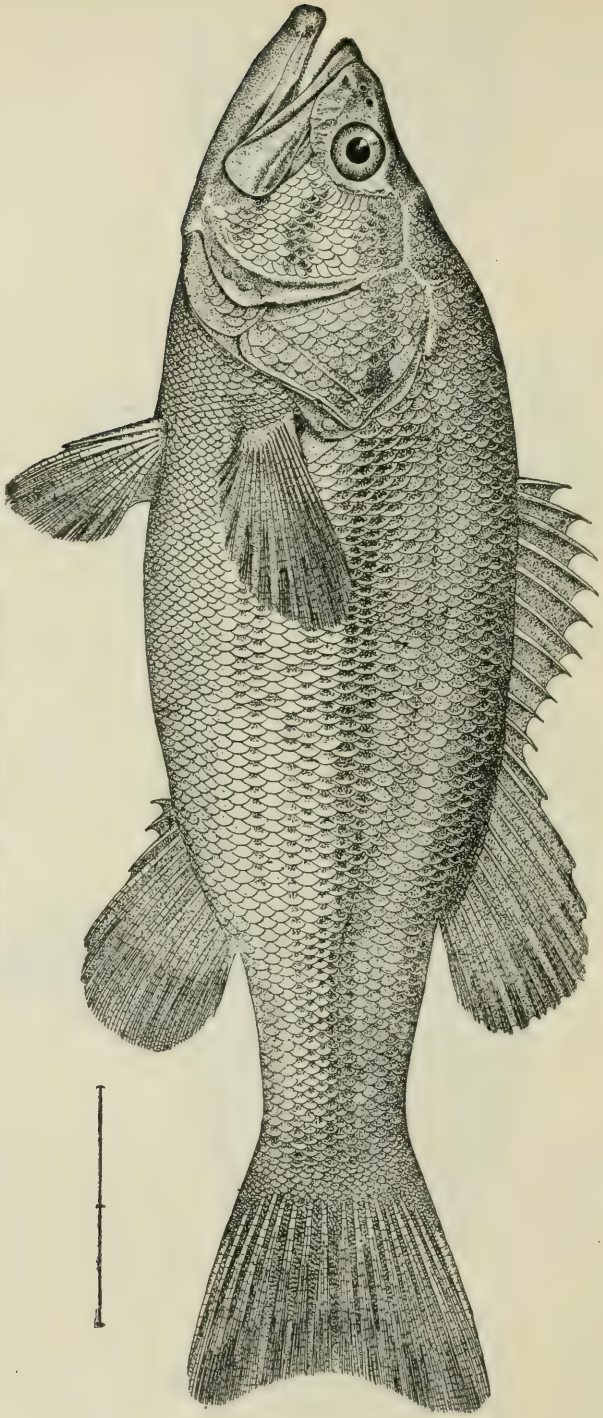
Statement showing the number of fry distributed in the waters of the Province by the Federal Government from Dominion hatcheries.

Years.	Newcastle Hatchery.	Sandwich Hatchery.	Ottawa Hatchery.	Total.
1868-73	1,070,000			1,070,000
1874	350,000			350,000
1875	650,000			650,000
1876	700,000	8,000,000		8.700,000
1877	1,300,000	8,000,000		9.300,000
1878	2,605,000	20,000,000		22,605,000
1879	2,602,700	12,000 000		14,602,700
1880	1,923,000	13,500,000		15,424,000
1881	3,300,000	16,000,000		19,300,000
1882	4,841,000	44,000 000		48,841,000
1883	6,053.000	72,000,000		78,053,000
1884	8,800,000	37,000,000		45,800 000
1885	5,700,000	68,000,000		73,700,000
1886	6,451.000	57,000,000		63,451,000
1887	5,130,000	56,500,000		61.630,000
1888	8,076,000	56,000,000		64,076,000
1889	5,846,500	21,000,000		26,846,500
1890	7,736,000	52,000 000	5,732,000	65,468,000
1891	7,807,500	75,000 000	7.043,000	89,850,500
1892	4,823,500	44,500 000	4,909,000	54,232 500
1893	9,835,000	68,000 000	6,208,000	84,043,000
1894	6,000,000	47,000,000	4.480.000	57,480,000
1895	6,000.000	73,000,000	3,210,000	82.210,000
1896	5,200,000	61,000.000	3,950,000	70,150,000
1897	4,200 000	72,000.000	4,100,000	80,300.000
1898	4,325,000	71,000,000	3.020.000	78,345,000
1899	4 050.000	73,000,000	3,700,000	80,750,000
1900	5,175 000	90,000,000	3,450,000	98 625,000
1901	5,900 000	67 000,000	3,014 000	75,914,000
1902	650.000	100,000,000	1,245,500	101,895,000
1903	2,500,000	90,000,000	1,201,000	93,701,000
Totals	139,600.200	1,472,500,000	55,262,500	1,574,862,200

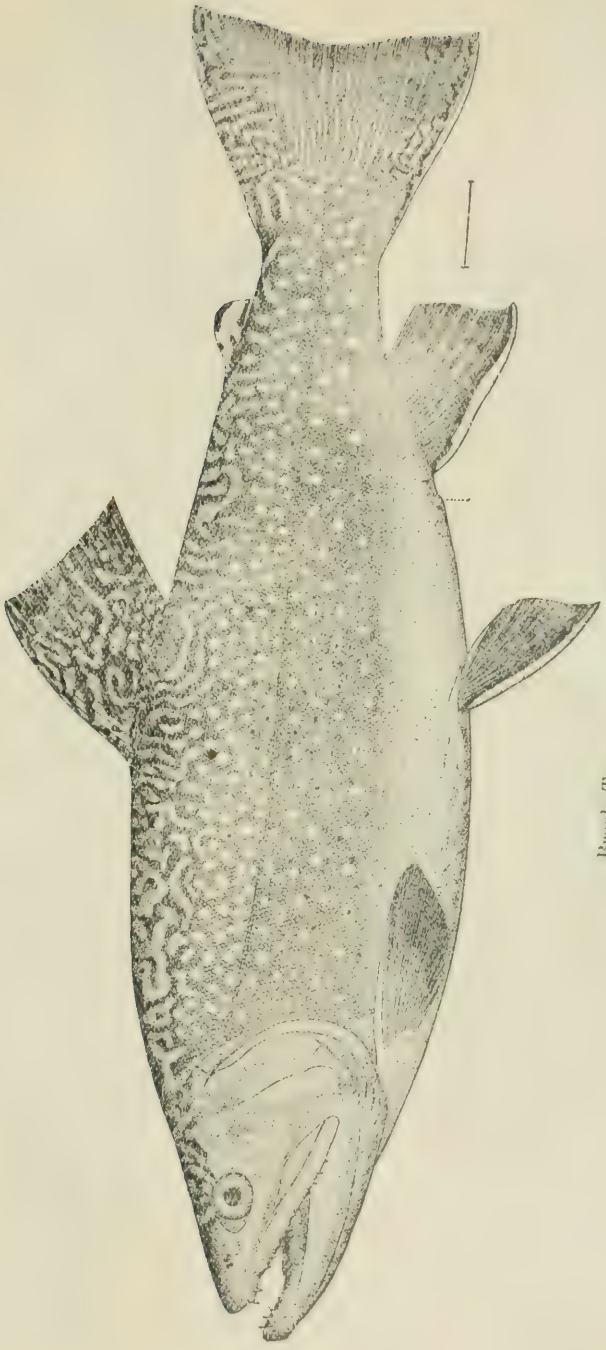
The above figures are taken from the report of the Department of Marine and Fisheries.



Small-mouthed Black Bass. (*Micropterus dolomieu.*)

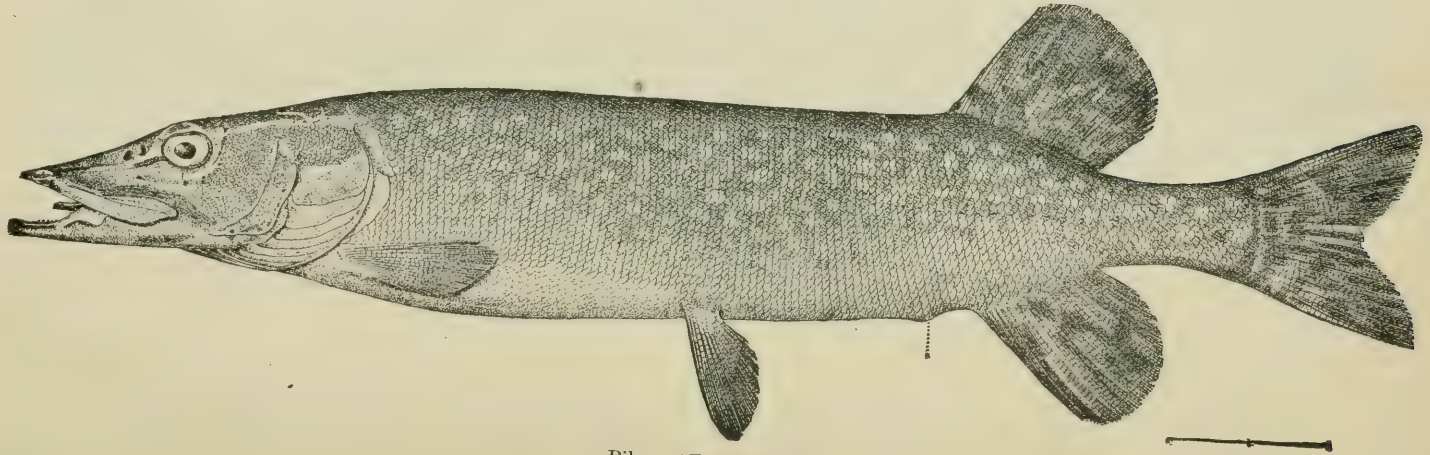


Large-mouthed Black Bass. (*Micropterus salmoides*.)

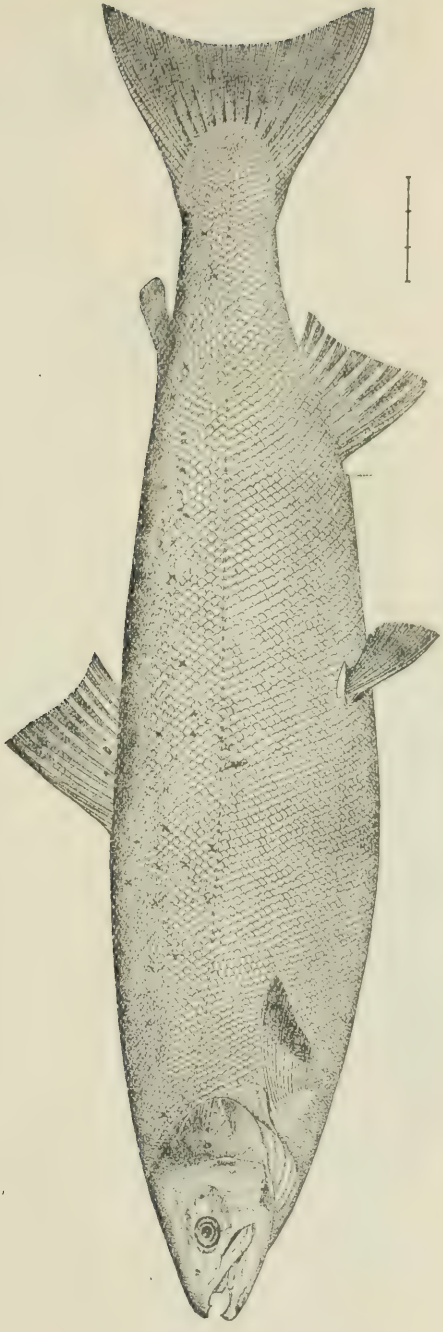


Brook Trout. (*Salvelinus fontinalis.*)

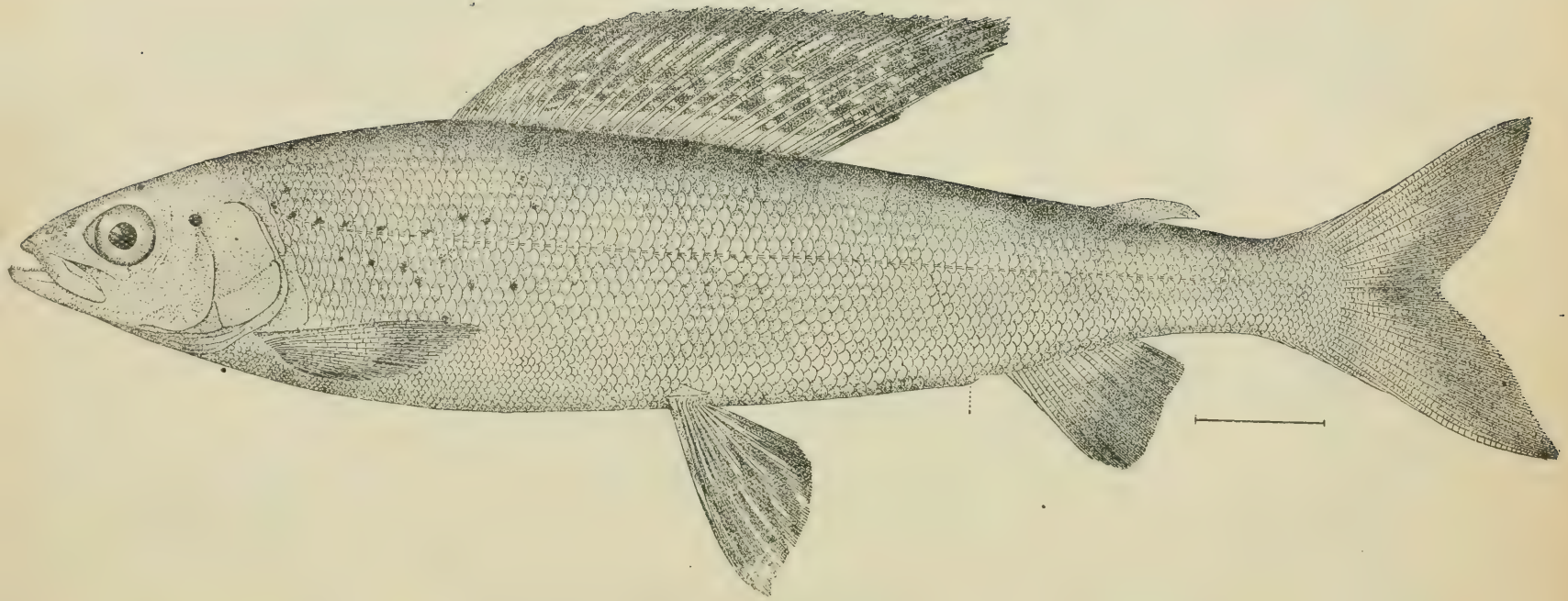
Maskinonge. (*Esox nobilior.*)



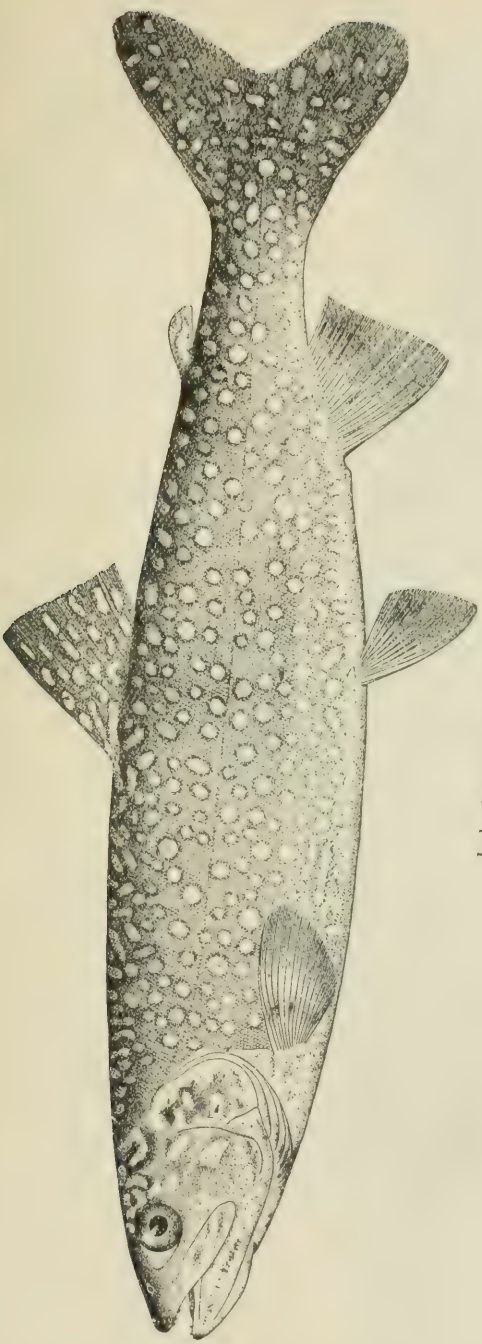
Pike, (*Esox lucius.*)



Atlantic Salmon. (*Salmo salar*)

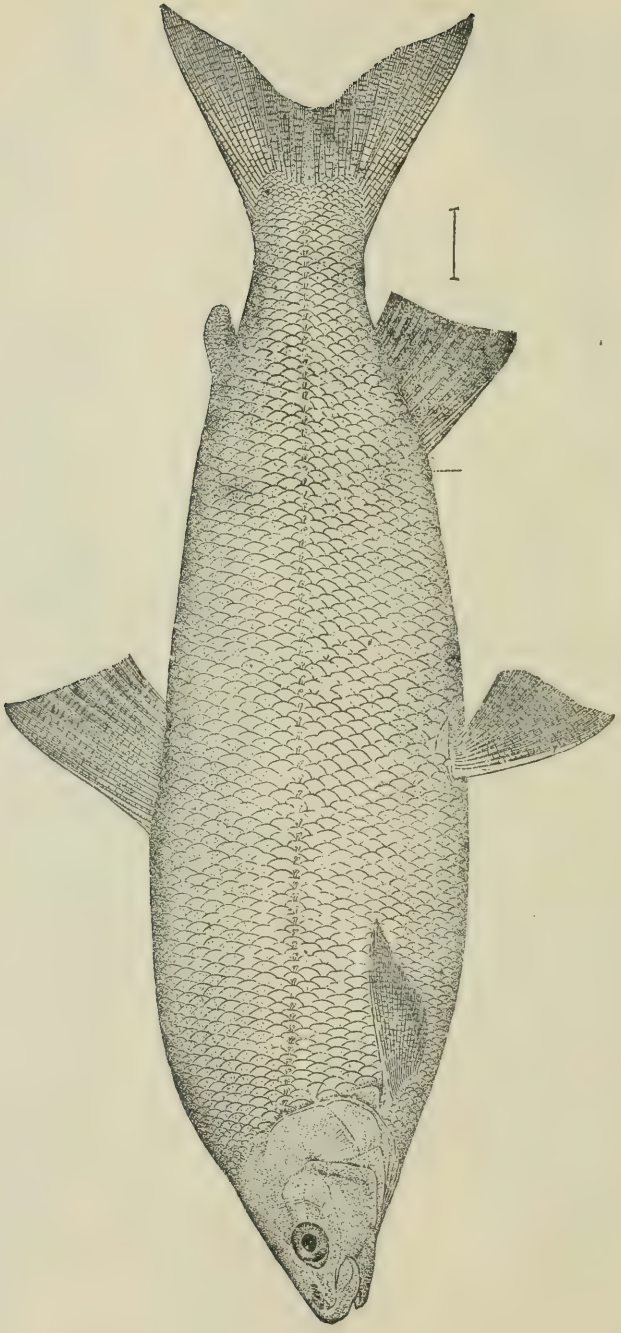


The Grayling. (*Thymallus tricolor.*)

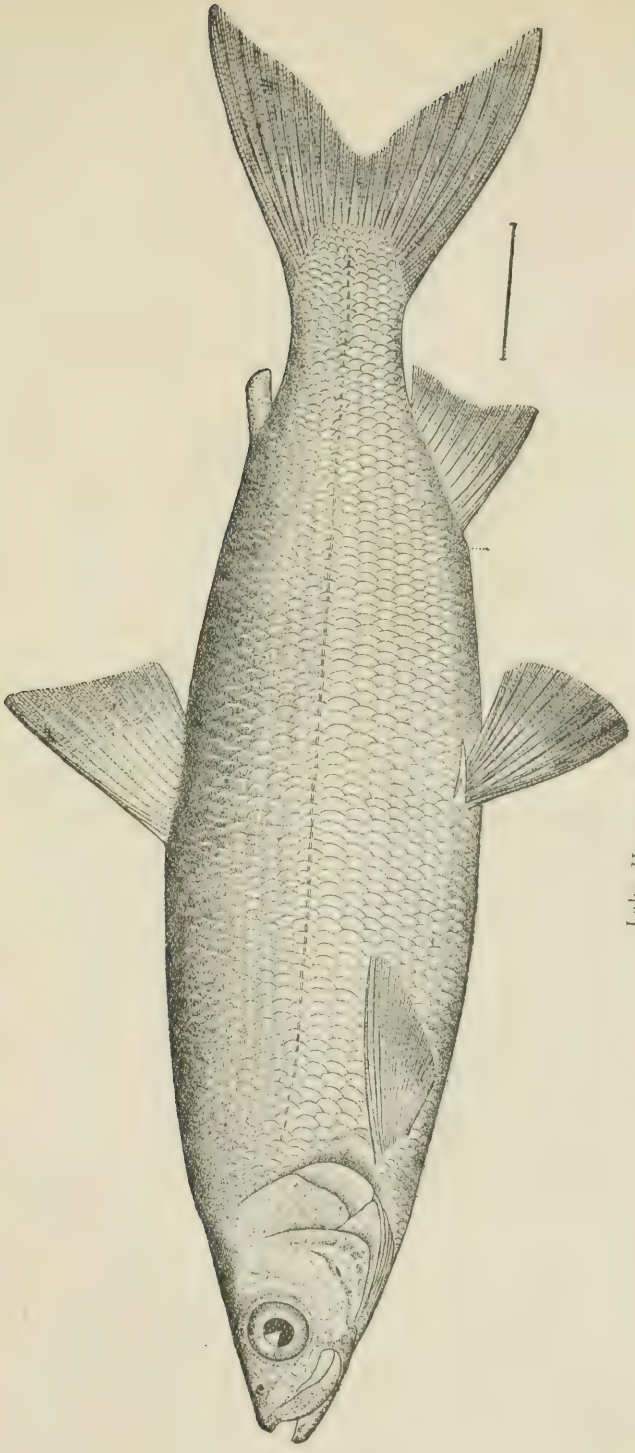


Lake Trout. (*Salvelinus namaycush.*)

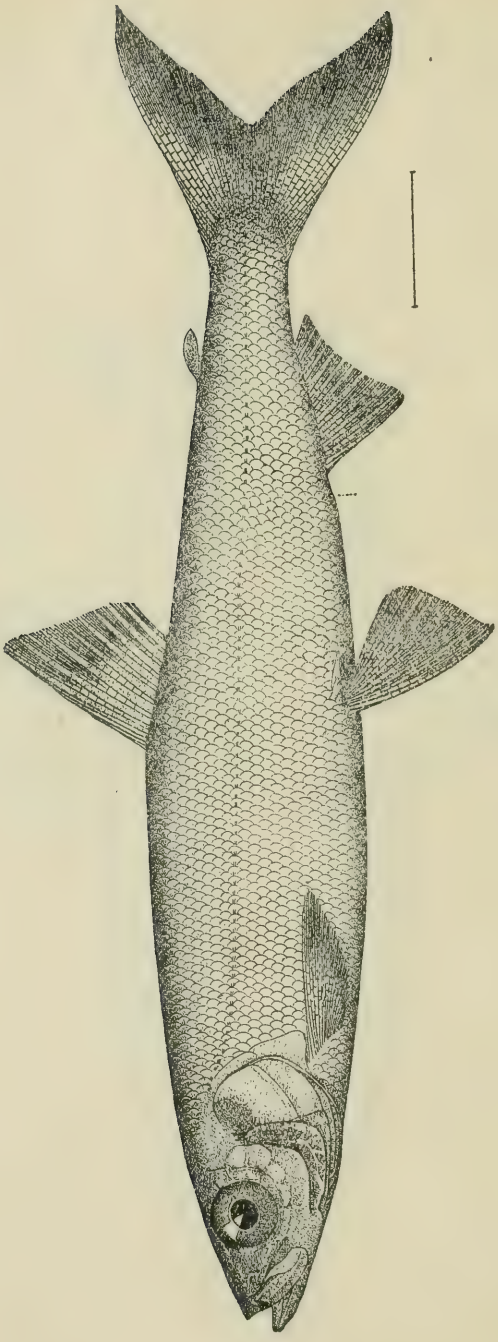
Sturgeon. (*Acipenser rubicundus.*)



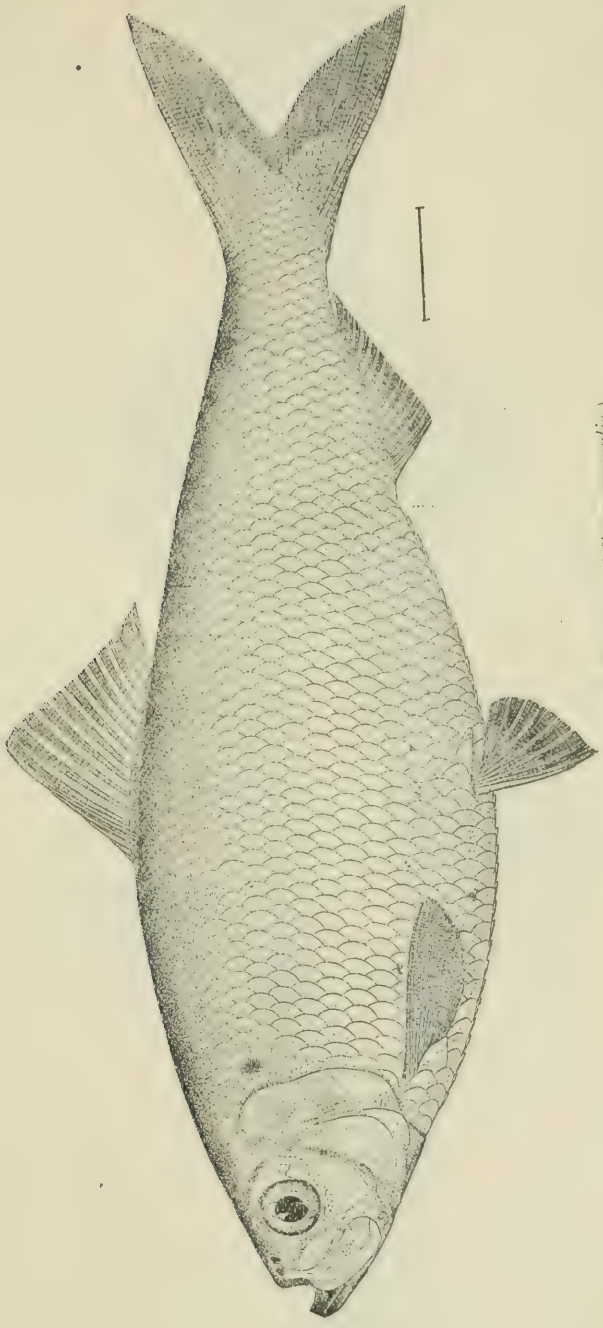
Whitefish. (*Coregonus clupeiformis.*)



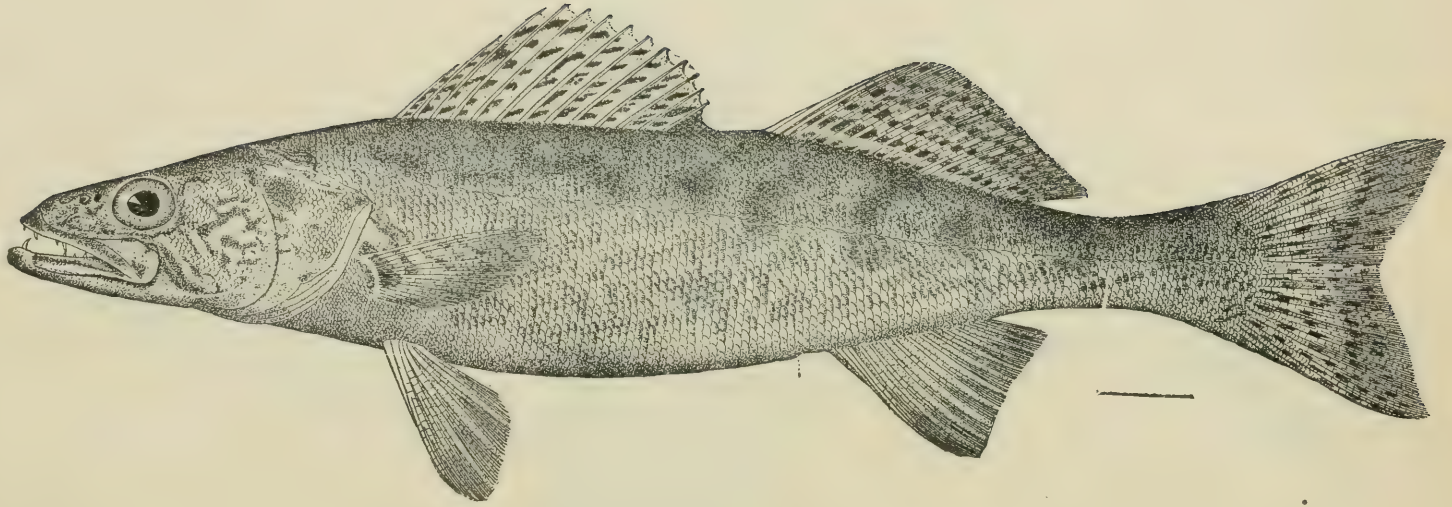
Lake Herring. (*Coregonus artedi.*)



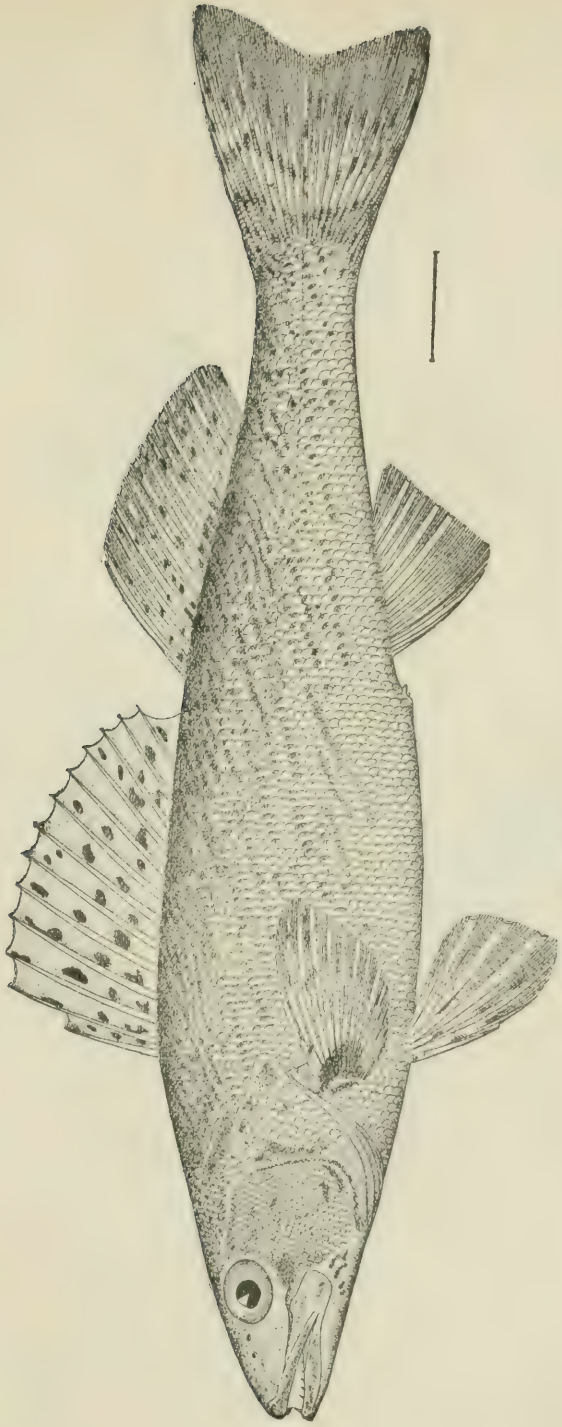
"Longjaw" of Lake Ontario. *Coregonus hoyi.*



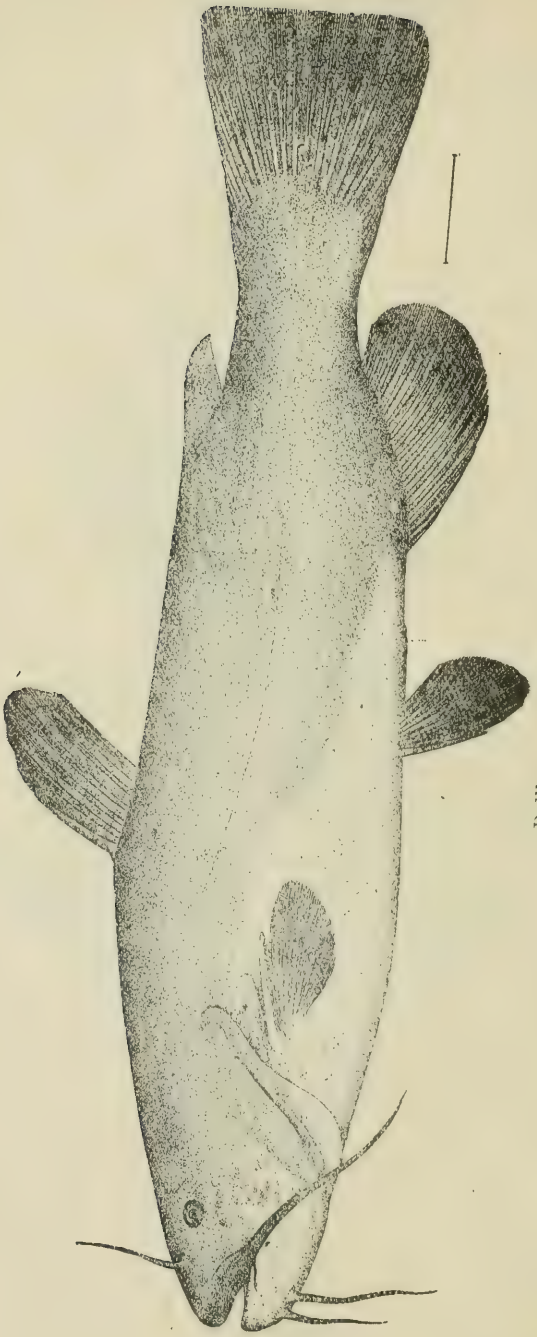
The Alewife or Branch Herring. (*Clupea vernalis.*)



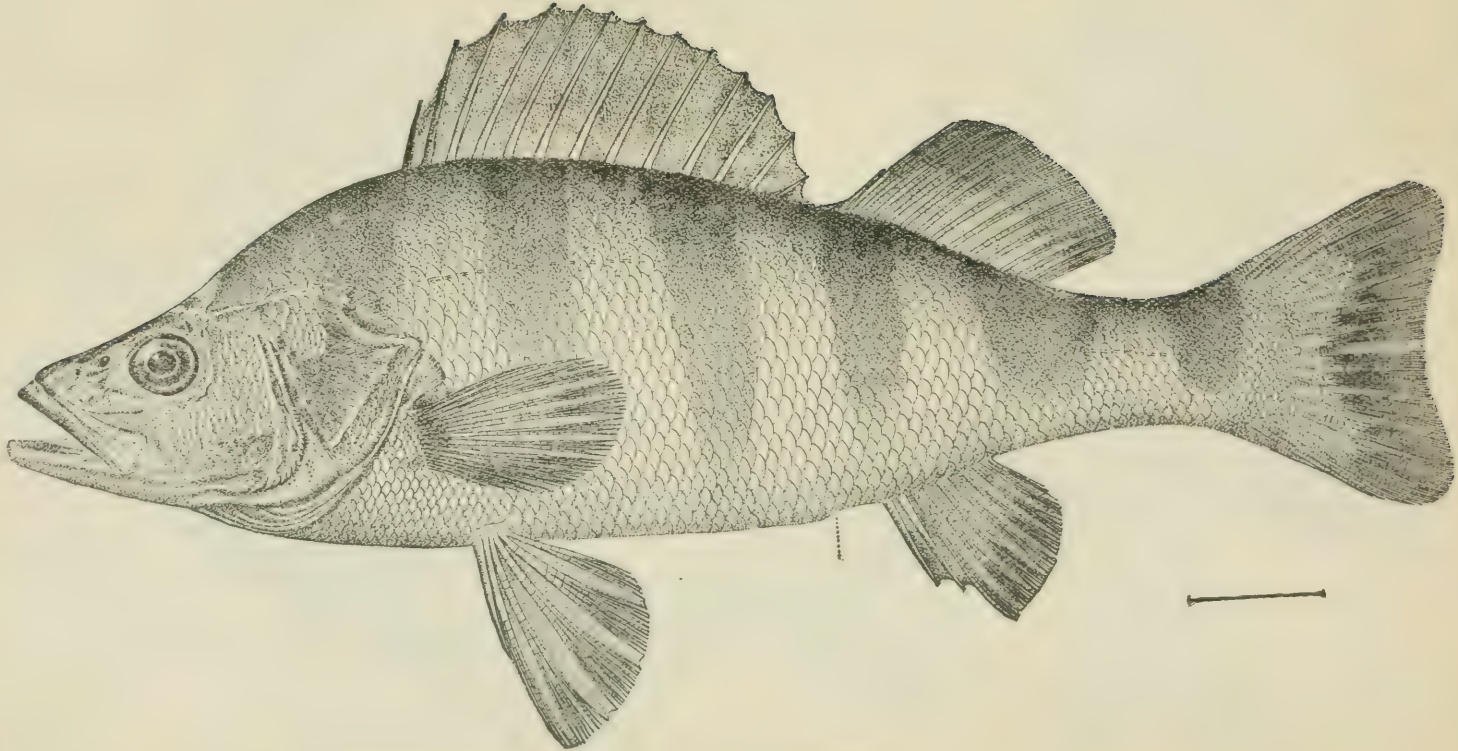
Pickerel, Dore, Pike-Perch, or Wall-eyed Pike. *(Stizostedium vitreum.)*



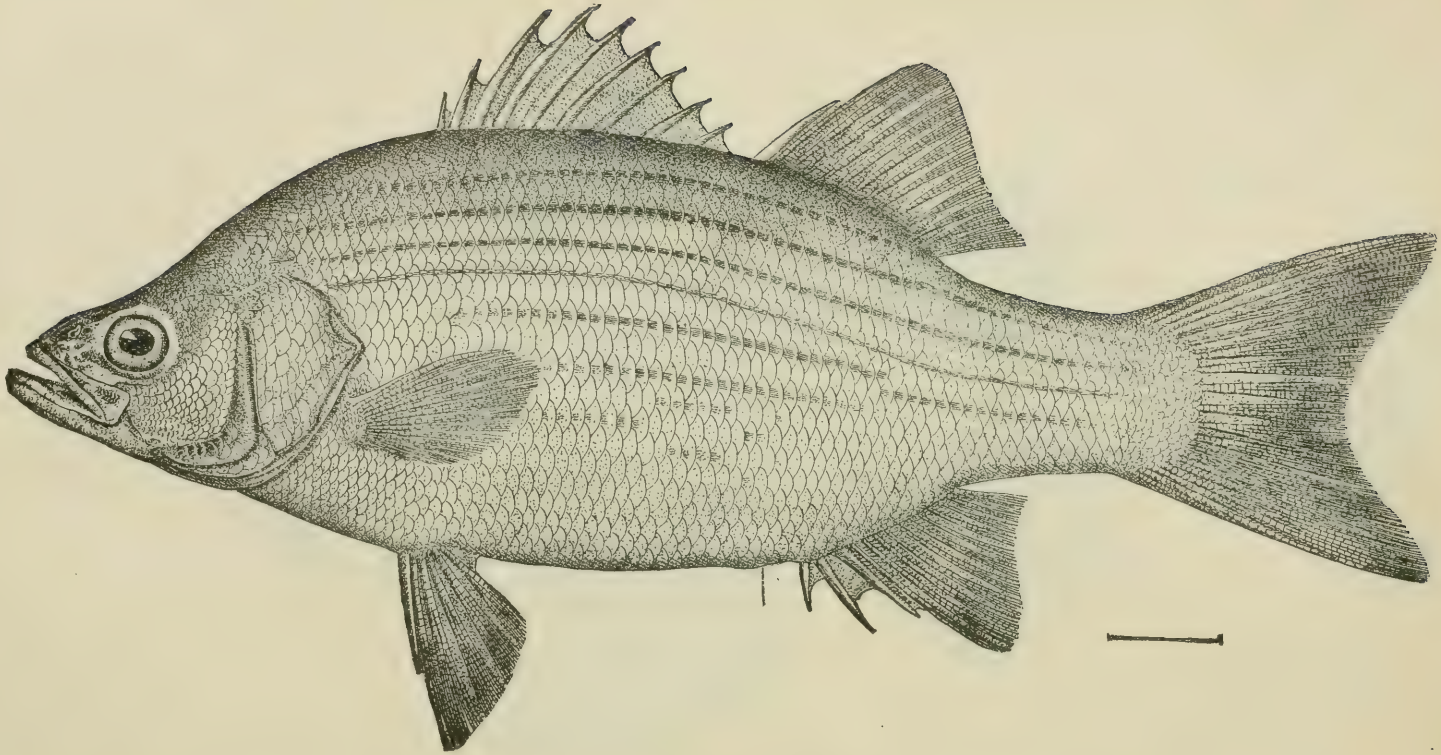
Sauger or Blue Pickerel. (*Stizostedium canadense.*)



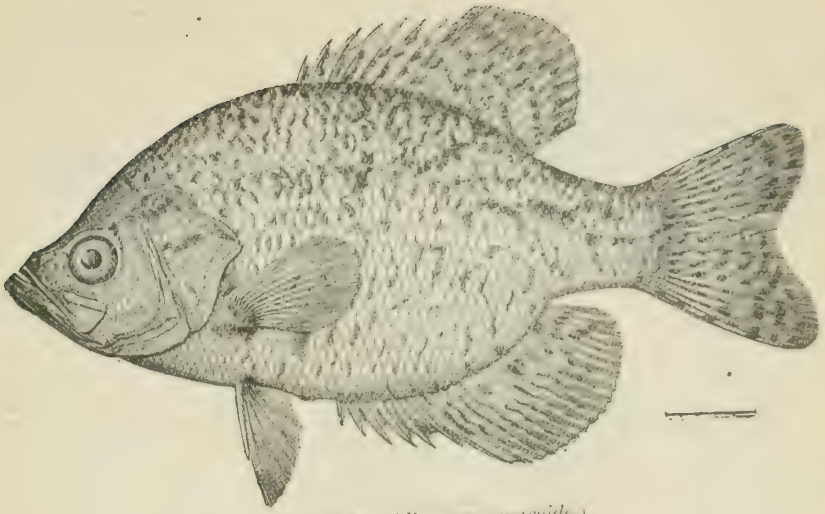
Bullhead. (*Amiurus vulgaris.*)



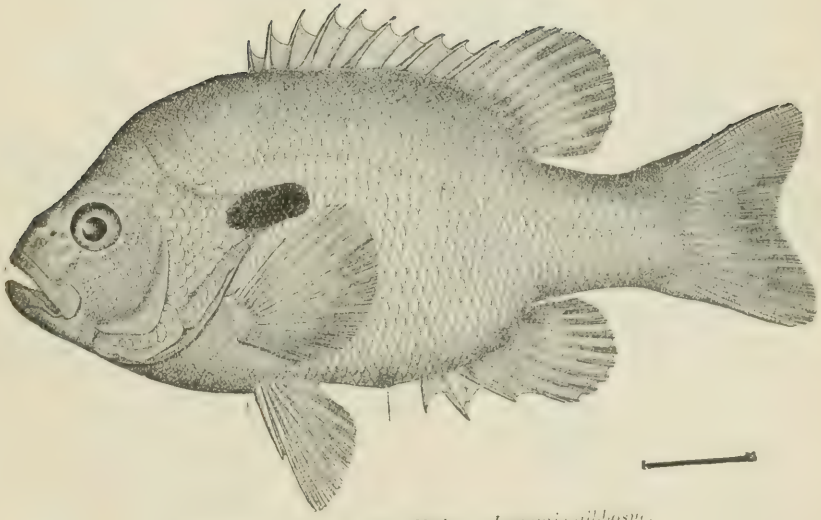
Yellow Perch. (*Perca americana.*)



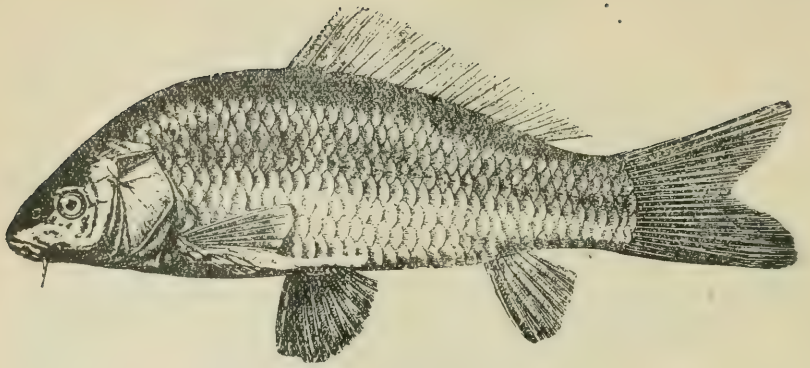
White Bass. (*Roccus chrysops.*)



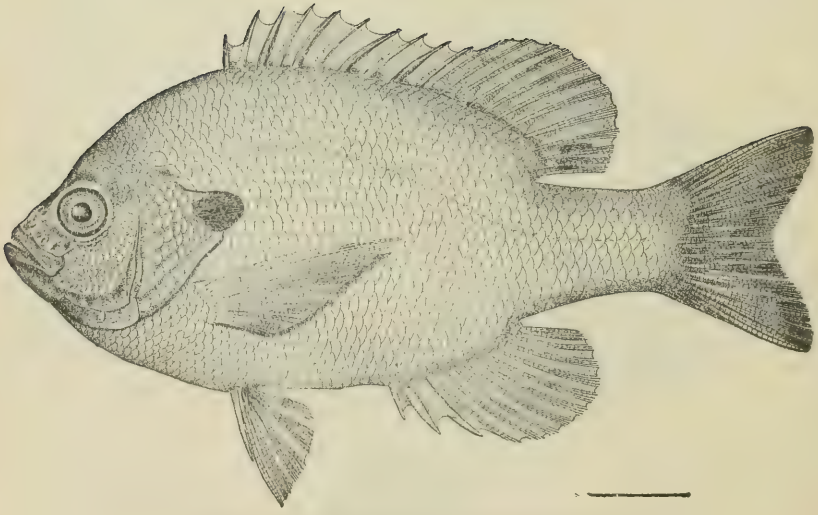
Grass Bass. (*Pomoxys sparoides.*)



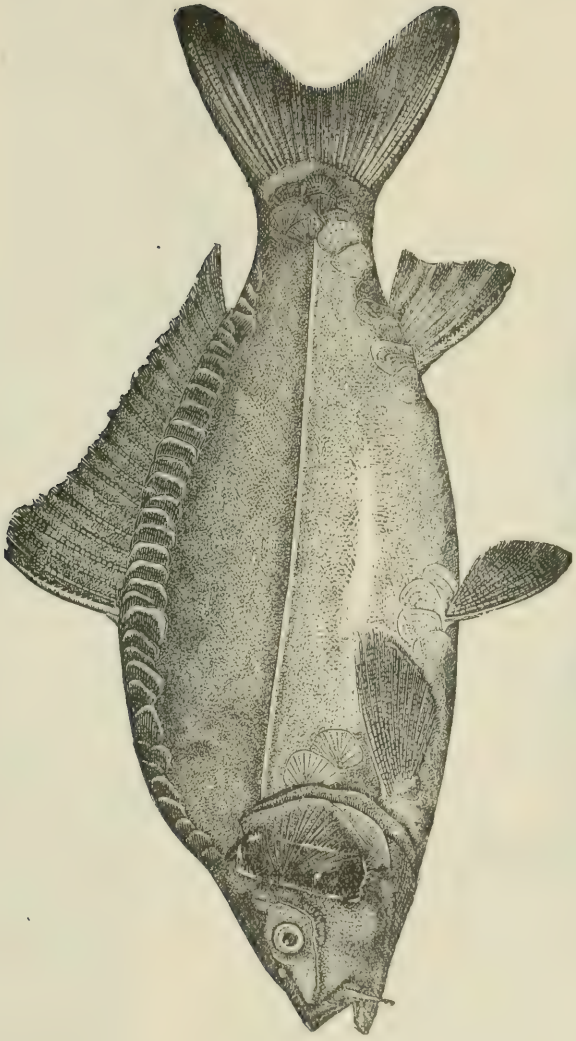
Pumpkin Seed or Sun Fish. (*Lepomis gibbosus.*)



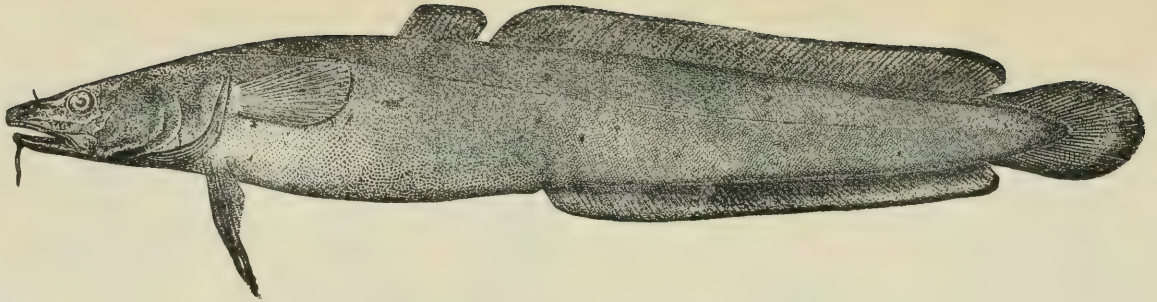
German Carp, (*Cyprinus carpio.*)



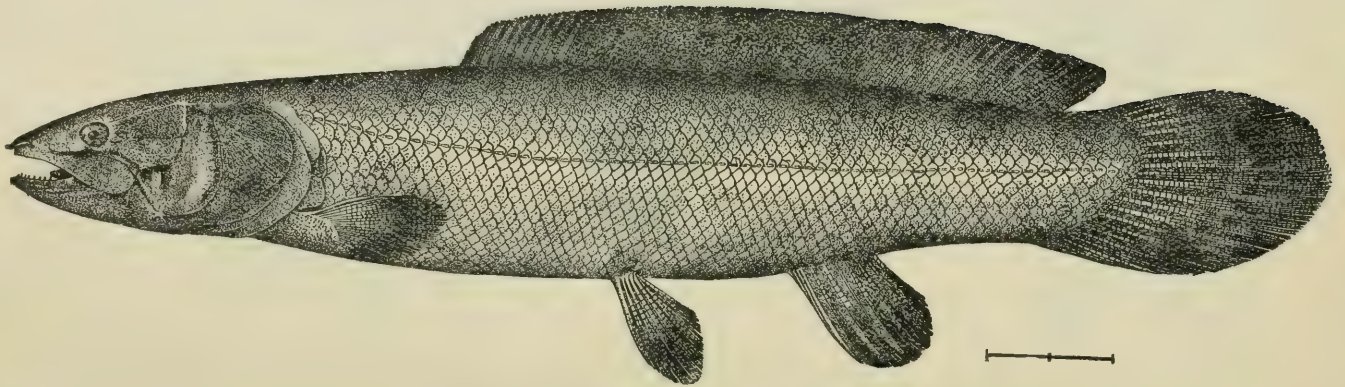
The Long-eared Sun Fish. (*Lepomis auritus.*



The Mirror Carp. (*Cyprinus carpio.*)



Ling or Burbot. (*Lota americana.*)



Dog Fish, Bowfin or Mud Fish. (*Amia calva*)

SECOND ANNUAL REPORT

OF THE

Temiskaming and Northern Ontario Railway Commission

TO

December 31, 1903

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed and Published by L. K. Cameron, Printer to the King's Most Excellent Majesty.
1904.

WARWICK BRO'S & RUTTER, Limited, Printers,
TORONTO

A. E. AMES, *Chairman.*
B. W. FOLGER.
P. E. RYAN, *Sec.-Treas.*

Temiskaming and Northern Ontario Railway Commission

EDWARD GURNEY.
F. E. LEONARD.
M. J. O'BRIEN.

OFFICE OF THE SECRETARY-TREASURER,

TORONTO, Jan. 18th, 1904.

HON. F. R. LATCHFORD,
Commissioner of Public Works, Ontario,
Toronto.

SIR,—I have the honour by direction to submit to you for presentation to the Legislature the report of the Temiskaming and Northern Ontario Railway Commission of the work done and moneys expended during the year ended Dec. 31st, 1903, under the Act, 2 Edward VII, chapter 9, as amended by the Act, 3 Edward VII, chapter 4.

I have the honor to be, Sir,
Your obedient servant,

P. E. RYAN,
Secretary.

The Temiskaming and Northern Ontario Railway Commission

A. E. AMES, *Chairman* ..... Toronto.
EDWARD GURNEY ..... Toronto.
M. J. O'BRIEN ..... Renfrew.
B. W. FOLGER ..... Kingston.
F. E. LEONARD ..... London.

P. E. RYAN,
Secretary-Treasurer.

FINANCIAL ARRANGEMENTS.

The Commission had the honor of reporting under this heading in their First Annual Report a temporary issue of Bonds guaranteed by the Province and payable on demand after 1st July, 1903. This issue consisted of one hundred temporary Debenture Bonds of $10,000 each. It was then thought that this amount would be sufficient to provide for the temporary requirements of the Commission. Owing to the lateness of the meeting of the Legislature, however, and the protracted length of the Session, it became apparent that in order to allow ample time for the preparation, advertisement and sale of the permanent bonds, provision would have to be made for further temporary financing. The Committee appointed by the Commission to arrange for the issue of the permanent bonds accordingly recommended to the Commission an issue of two hundred temporary bonds of $10,000 each to conform with the provisions of the Amended Act of last Session. The Commission approved the recommendation of the Committee, and, with the approval of the Government, authorized the new issue, of which an equal number was substituted for the bonds already deposited with the banks. The date of maturity of this new issue of bonds was 1st October, 1903. In the meantime the Committee appointed to confer with the Government and prepare a form of bond extending over a term of years as contemplated by the Act, having ascertained the wishes of the Government in the premises, prepared a form of bond to meet the views of the Government, and an offering was made to the public in Canada, the United States, England and Scotland in the following terms:—

PROSPECTUS OF THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY.

(ONTARIO GOVERNMENT RAILWAY.)

$2,750,000 3½ per cent. 30-year Gold Bonds, consisting of 5,500 Bonds, each $500 or £102 14s. 10d. Sterling.

Guaranteed by the Province of Ontario.

Sealed tenders addressed to P. E. Ryan, Secretary-Treasurer, and marked "Tender for Bonds" will be received by the Temiskaming and Northern Ontario Railway Commission at its offices in Toronto up to 10 o'clock a.m. of Saturday, 12th September, 1903, for the purchase of $2,750,000 of bonds, to be delivered in Toronto.

$2,000,000 on 1st October, 1903, and $750,000 in three equal instalments of 1st December, 1903, 1st February, 1904, and 1st April, 1904.

The bonds will all be dated 1st Oct., 1903, and will be payable thirty days from that date, with interest at 3½ per cent. per annum half yearly on the first days of April and October in each year.

The issue will consist of 5,500 bonds, each for $500 or £102 14s. 10d. sterling. Both principal and interest will be payable in gold of the present standard of weight and fineness in Toronto or New York or in London, England, at the holder's option.

These bonds are issued under the authority and subject to the provisions of the Statute of the Province of Ontario, authorizing the construction of the

Temiskaming and Northern Ontario Railway, passed in the second year of His Majesty King Edward VII., Chapter 9, as amended by the Statute of the Province of Ontario, passed in the third year of the said reign, Chapter 4.

The total bond issue in respect of the said railway is not to exceed $25,000 for each mile of the railway and extensions and branches.

The railway being a Government enterprise and the Commission being trustees for the Province, the payment of the principal and interest of the said bonds will be guaranteed by the Province of Ontario, and specifically secured by the bonds being by said Statutes made a charge upon the franchise, the right of way, the roadbed and all permanent fixtures and appurtenances of the line of railway, and on the proceeds of the sale of the land grant of 20,000 acres per mile, not including, however, the proceeds of the sale of timber or minerals thereon.

The said Statutes provide that a separate and distinct account shall be kept by the Commissioner of Crown Lands of the Province of the proceeds of the sale of said lands, which, together with the surplus income of the Commission from other sources, shall be paid over annually to the Provincial Treasurer to provide a sinking fund for the redemption of the bonds.

Such sinking fund is to be invested in such securities as the Lieutenant-Governor in Council from time to time shall think proper.

The contract was let in the month of October, 1902, for the construction of the main line from the Town of North Bay to Lake Temiskaming, a distance of 110 miles, work under which has been continuously prosecuted since that time.

Tenders for the deliveries of December, 1903, and February and April, 1904, must in all cases be for equal amounts of each delivery, subject to which tenders may be for the whole issue or for any part thereof, but where not for the whole issue must specify dates of delivery desired. Forms of tender will be supplied by the Secretary-Treasurer on application.

Bonds deliverable on 1st April, 1904, will have the first interest coupon detached, and will consequently bear interest from the date of delivery.

As to deliveries of December, 1903, and February, 1904, purchasers, in addition to the prices bid, will pay on delivery the interest accrued from 1st October, 1903.

Each tender must be accompanied by a deposit in the form of bank draft or accepted check on a chartered bank to the order of the Temiskaming and Northern Ontario Railway Commission for an amount equivalent to 5 per cent. of the par value of the amount of bonds covered by such tender, which deposit shall constitute a partial payment and be forfeited to the Commission in the event of a failure on the part of the tenderer to make full payment according to the terms thereof. The balance of the price must be paid on the respective dates of delivery as above.

The form of bond may be seen on application to the Secretary-Treasurer, and the validity thereof is certified by Mr. D. E. Thomson, K.C., Counsel for the Commission, whose report is appended.

Interest at 3½ per cent. from date of acceptance of tender will be allowed on the deposits of successful tenderers.

Deposits of unsuccessful tenderers will be promptly returned.

The Commission will not be bound to accept the highest or any tender.

Dated at Toronto, this 22nd day of July, 1903.

TEMISKAMING AND NORTHERN ONTARIO
RAILWAY COMMISSION.

A. E. Ames, *Chairman.*
P. E. Ryan, *Secretary-Treasurer.*

The bonds referred to in the foregoing prospectus will constitute an obligation of the Province of Ontario, and will be equivalent to Government bonds, with the added security of the railway and land grant, as mentioned. When issued, countersigned and certified, as required by the Statutes, they are thereby declared conclusive of having been issued in pursuance of the Act of the Legislature, and of being guaranteed by the Province.

In my opinion, the bonds of the proposed issue will be a good and valid security, and binding on the Province, and a charge on the railway and land grant, according to their tenor, as set forth in the prospectus.

D. E. THOMSON,
Counsel for the Commission.

Toronto, July, 1903.

Tenders as follows were opened at a meeting of the Commission held on 14th September.

The Canadian Bank of Commerce. 1,000 bonds (of $500 each) on a basis to yield four per cent. per annum.

The Bank of Ottawa. 370 bonds (of $500 each) on a basis to yield four per cent. per annum.

The Home Life Association of Canada. 100 bonds (of $500 each) on a basis to yield four per cent. per annum.

Wm. Tasker, Mount Forest, Ont. $4,000 for nine bonds (of $500 each).

After careful consideration of the advisability of disposing of 2,000 bonds (of $500 each) to those of the tenderers named above whose tenders were on a four per cent. basis, and to certain banks which had expressed a willingness to share in an allotment on such a basis, the conclusion arrived at by the Government and the Commission was that it seemed more advisable to make arrangements for further temporary financing, pending an opportunity for the disposition of the bonds on a favorable market. Accordingly, after the necessary preliminary negotiations had been completed, loans were effected through the banks aggregating $2,300,000 to run for upwards of a year at five per cent. per annum. This plan provided for the then existing indebtedness and for the financial requirements for a considerable period ahead.

In view of the depressed condition of the money market ruling at the time, the Commission considered the foregoing arrangement a favorable one. Enquiries had been made in Montreal, New York, and London, England, as well as in Toronto, as to the best arrangements which the Commission could make for a temporary loan, with the result that although most favorable avenues were placed at the disposal of the Commission it was found impracticable to procure a loan for a period of fifteen months at a rate, including cost of exchange, etc., as favorable as a straight five per cent. rate free of all other charges.

It is perhaps well to report under this heading what has alreay been officially communicated to the Government, viz., that it having appeared to be the policy of the Government and the Legislature to give to the Commission a somewhat wide scope of discretion as to the character of the road to be constructed, the Commissioners proceeded in a manner which accorded with their best judgment of what was required under the circumstances. The decision of the Commissioners which was concurred in by the Government was that a railway should be constructed which would be creditable to the Province, and which would conform to the standard of a trunk line, having regard at the same time to proper economy in every direction. The Chief Engineer of the

Commission accordingly endeavored to obtain such grades and curvatures as would be consistent with this governing idea, and the Commission's contracts have been entered into and their arrangements have all been made with this object in view.

Below is an estimate of the cost of the road complete with an appropriate equipment of rolling stock:

Grading, including trestle work, bridging, etc	$18,000	per mile.
Rails and fittings, ties, ballasting, telegraph line, track-laying, etc	7,000	" "
Terminals, sidings, stations, water-tanks, etc	1,755	" "
Rolling stock	3,000	" "
	$29,755	" "

Having regard to the foregoing and to the liability that there always is of the most careful estimates being exceeded, the Commission felt it might be impracticable, although every effort would be made to keep down the cost of the road, to limit the expenditure to $25,000 per mile, the limit of the bond issue stipulated in the Act, without adopting a policy which would be destructive of the whole character of the enterprise. In this connection it now seems necessary to make some provision for the operation of the road. Accordingly, it may be necessary later on to supplement the proceeds of the bond issue from some other source (unless the limit per mile of the bond issue be increased), and as neither the original Act nor the amended Act of last Session authorizes the Government to finance the enterprise in any other way than by the issue of bonds, it would seem prudent to make some provision for the raising of any additional funds that may be required.

TERMINAL ARRANGEMENTS AT SOUTHERN TERMINUS.

The matter of effecting a satisfactory agreement with either the C.P.R. or G.T.R. received the consideration of the Commission in the fall of 1902, and communications were addressed to the General Managers of the C.P.R. and the G.T.R. in this connection. The General Manager of the G.T.R. stated his willingness to enter into a joint agreement with the Commission for the construction and use of a line from Nipissing Junction to North Bay, including the putting in of a terminal yard and engine-house at the latter point, but that he would hardly feel warranted in going to the expense necessary for the establishment of these terminal facilities unless supported by an agreement for some fixed period of time, say, at least five years; that if the Commission thought it undesirable to enter into such an agreement he would suggest that an arrangement be entered into with the C.P.R. on a trackage rate for the use of the C.P.R. line between North Bay and Nipissing Junction —the Commission making deliveries to and taking business from the G.T.R. at the last-named point.

The General Manager of the C.P.R. expressed his willingness to permit the Commission to use the terminal facilities of the C.P.R. at North Bay, including the round house, station, yards and freight and passenger arrangements on terms to be agreed upon; and a committee was appointed to go to Montreal and negotiate with the C.P.R. and G.T.R. with a view of making terminal arrangements at North Bay or Nipissing Junction, or at both points. The Committee visited Montreal during the month of January, and the result of their visit was the execution of the agreement with the C.P.R. for terminal facilities and services which follows:—

THIS AGREEMENT, made the sixth day of April, one thousand nine hundred and three, between *The Canadian Pacific Railway*, hereinafter called "The Pacific Company," and of the first part; *The Temiskaming and Northern Ontario Railway Commission*, hereinafter referred to as "The Commission," of the second part;

Whereas, the Commission is under the authority of the Act of the Legislature of the Province of Ontario, 2 Edward VII. chapter 9, constructing a railway from North Bay to Lake Temiskaming.

And Whereas the Commission desires to secure for a limited period the right to run its trains, both passenger and freight, over the railway track of the Pacific Company between Nipissing Junction and North Bay, and to use the yard and terminal facilities of the Pacific Company at North Bay which track and yard facilities are hereinafter called "The Joint Premises."

And Whereas the Pacific Company is willing to grant the said right to the Commission upon the terms and conditions hereinafter contained;

Now therefore this agreement witnesseth, that the parties hereto, each for itself, its successors and assigns, hereby covenant and agree as follows, that is to say:

1. (*a*) The Pacific Company shall, during the continuance of this agreement, subject to the conditions hereinafter contained, allow the Commission to use the Pacific Company's track either way between Nipissing Junction and North Bay for trains, both passenger and freight.

(*b*) And also to use the yard and facilities of the Pacific Company at the last-named point.

(*c*) The use of the said terminal facilities at North Bay shall include, amongst other things, the use of switching engines, the services of all the station and yard staff of the Pacific Company, the making up and setting away by the Pacific Company of the trains of the Commission, the conducting and handling by the Pacific Company of all the freight and passenger business of the Commission at North Bay, and the ordinary station accounting in connection therewith, the Commission providing its own blank forms.

2. The Commission shall pay to the Pacific Company for the right above granted of using the track of the Pacific Company either way between Nipissing Junction and North Bay the sum of two dollars and forty cents for each passenger train, and two dollars and eighty cents for each mixed or freight, or any other class of train, run either way between the said two points.

3. For the terminal facilities above mentioned at North Bay the Commission shall pay to the Pacific Company the following compensation:—Fifty cents per car for each and every car, empty or loaded, arriving at, and a similar charge for each and every such car leaving the North Bay yard of the Pacific Company in the trains of the Commission, except cars of carload freight destined to points on or via the railway of the Pacific Company, and taken out of the said North Bay yard in the trains of that Company, and cars of carload freight arriving at the North Bay yard in the trains of the Pacific Company destined to points on or via the railway of the Commission, and taken out of the said yards on trains of the Commission; provided, however, that the minimum sum that shall be paid to the Pacific Company in respect to any one train of the Commission arriving at or leaving the said yard shall be four dollars. No charge shall be made under this clause for light engines, that is, engines without cars which arrive at or leave the said yard. In addition to the above-mentioned sums the Commission shall pay to the Pacific Company for the same facilities the sum of twenty-five cents per ton for every ton of freight handled at the freight sheds of the Pacific Company at North Bay and which is destined to or which originated at a point on the railway of the Commission. The Commission shall also pay the cost of providing a telegraph operator at the point of junction of the railway of the Commission with the railway of the Pacific Company (if the Pacific Company decides that such operator is necessary) and the cost of the necessary accommodation for such operator.

4. The Pacific Company shall give the same care and attention and do the same work to the passenger and freight cars arriving at and leaving North Bay in the trains of the Commission as it does at that point to its own cars of the same class in similar service, including, in the case of passenger cars, any labor engaged and the use of any tools required in the cleaning and lubricating of said cars and in supplying them with ice water, fuel and oil and other materials for lighting and lubricating, and the Commission shall pay the Pacific Company for the same the sum of one dollar for each passenger and baggage car so cleaned and cared for, and also the actual cost, plus ten per cent., of any ice water, fuel, oil, waste or any other supplies or material furnished, and of any inspection and repairs to the said passenger cars, including labor and material (the cleaning in the case of sleeping and parlor cars to be what is known as "railroad cleaning"), and in the case of freight cars arriving and leaving North Bay in the trains of the Commission, the Commission shall pay the Pacific Company the actual cost, plus ten per cent., of any inspection and repairs made, including labor and material, and of any oil, waste or other supplies furnished to such cars by the Pacific Company.

5. The Pacific Company shall for and in consideration of the amounts hereinafter specified respectively which the Commission hereby covenants to pay to the Pacific Company, perform the following services and furnish the following supplies for or in connection with the engines of the Commission at North Bay:

Handling, turning, housing and cleaning locomotives, including labor, dumping and lighting up fires	$1.40 per engine.
Repairs	Cost plus 10 p.c.
Water	25 cents per tender.
Coal, cost, including freight charges plus 10 cents per ton for accounting	
Oil, waste and other running supplies	Cost plus 10 p.c.

6. Bills for moneys due the Pacific Company each month under Clauses two and three, four, five and seven or otherwise under this agreement are to be rendered by that Company as soon as possible after the end of that month, and the Commission shall pay any moneys so due within thirty days after the receipt of the bill for the same. If the Commission fails to make payment to the Pacific Company for thirty days after notice in writing from the Pacific Company to the Commission of such failure, this Agreement shall at the option of the Pacific Company cease and terminate.

7. The Pacific Company shall construct and maintain the necessary switch connection at the East end of the said North Bay yard, and the Commission shall reimburse the Pacific Company the cost of the same.

8. The Commission shall handle and move its train between the said switch connection and the North Bay yard, and between Nipissing Junction and the North Bay yard with its own engines and engine and train crews, entirely at its own expense. The enginemen and trainmen and other employees of the Commission when on its trains or engines or elsewhere on the joint premises shall be governed by the rules of the Pacific Company, and the movement and handling of the said trains and engines on the said premises shall be subject to the rules and regulations and to the directions of the Pacific Company.

9. The trains of the Pacific Company shall have preference on the joint premises over the trains of the Commission of the same or inferior class, and the trains of the Commission shall have preferenec over the trains of the Pacific Company of an inferior class.

10. The Pacific Company shall not pay or be liable for any mileage or other compensation for the services on the joint premises of any engines or cars arriving or leaving said premises in the trains of the Commission, but the Commission shall pay and be liable for and hereby covenants to indemnify the Pacific Company against any claim or claims for any such mileage or other compensation for the services of such engines or cars; provided, however, that in the case of cars to be delivered by the Commission to the Pacific Company the Commission shall assume such mileage or other compensation from the time such delivery is made, and that in the case of the cars to be delivered by the Pacific Company to the Commission, the Commission shall assume such mileage or other compensation from the time such delivery is made.

11. Each of the parties hereto shall as between the parties hereto be responsible for any damage or injury to person or property on its trains, for any damage to person or property done by any of its trains, and for any damage to its trains while on the track of the Pacific Company between the said North Bay yard and Nipissing Junction by virtue of Clause 1, Section "A," and Clause 2 hereof, except in the case of collision between one of its trains and a train of the other party due to the fault of the trainmen on one of them, in which case the party whose trainmen are at fault shall be responsible for and make good to the other party the loss and damage caused by the collision.

12. In the case of damage or injury to person or property caused by a train of either party, and in the case of damage by fire caused by a train while on the joint premises, the claims arising therefrom shall with the approval of the Commission be adjusted by the proper officer of the Pacific Company, and in satisfaction thereof the party in fault shall pay the full amount of the liability, but in the final settlement therefore such settlement shall include and embrace a full and entire release of both parties hereto. In case of damage or injury occurring to person or property upon a train of either party while on the joint premises the proper officer of the party on whose train such damage or injuries may occur shall adjust the claim therefor and the release shall be made to include and free both Companies from further liability.

13. The Pacific Company shall not be liable for any act or omission or breach of duty of any officer or employee of the Pacific Company in either the construction, alteration, maintenance or operation of the joint premises or facilities or any part thereof to be used under this Agreement by the Commission or in any of the services which the Pacific Company undertakes in this Agreement to perform for the Commission, and the Commission hereby covenants to indemnify the Pacific Company against every such claim.

14. Every disagreement which may arise between the parties hereto as to the construction of this Agreement or any part thereof, or as to the rights or liabilities of the parties or of either of them under it shall be decided by arbitration, the Commission and the Pacific Company each to appoint one Arbitrator and the two so appointed to appoint a third; but if either party fail for two weeks after appointment by the other party to appoint its arbitrator, or if the two when appointed fail for that period to appoint a third, then any Judge of the Court of Appeal of the Province of Ontario may appoint an arbitrator instead of such party or instead of the two arbitrators as the case may be, and the award in writing of a majority of the three arbitrators shall be conclusive and binding upon the parties hereto.

15. *This Agreement* shall remain in force until the fifteenth day of May, one-thousand nine-hundred and four, and thereafter until terminated by either party as hereinafter mentioned.

16. Either party may at any time after the said date give to the other party a written notice naming therein a day at least twelve months from the time of the giving of the said notice on which this Agreement shall terminate, and upon the day so named in such notice this Agreement shall come to an end.

In Witness Whereof each of the parties hereto has caused its Corporate Seal to be hereto affixed and this Agreement to be signed by its officials below named.

(Signed) THE CANADIAN PACIFIC RAILWAY COMPANY

(Seal.) " D. McNICOLL, 2nd Vice-President.

" A. R. G. HEWARD, Assistant Secretary.

" THE TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION.

" A. E. AMES, Chairman.

(Seal.) " P. E. RYAN, Secretary.

CONTRACTS FOR STEEL RAILS.

The Commission had the honour of reporting in their First Annual Report the placing of an order with the Algoma Steel Company of 8,200 gross tons 80-lb. steel rails, A. S. C. E. Section, to conform with the Commission's specifications, at $32.00 per gross ton f.o.b. cars North Bay, and at the time of the making of that report it was hoped that the order would be taken care of by the Algoma Steel Company. So much time, however, elapsed without the return of the contract executed by the Algoma Steel Company, that the matter was energetically taken up by the Commission with the Company, with the result that Mr. Theodore C. Search, Vice-President of the Consolidated Lake Superior Company, came to Toronto, attended a meeting of the Commission, and reported that notwithstanding the desire of the Company to accept the Commission's contract, it felt that owing to the non-completion of its blast furnaces and the exhaustion of its bessemer pig-iron supply, there was a doubt as to their ability to make the required deliveries, and it was thought that it would be best to make a frank statement of the situation declining the order. This Mr. Search did, and the Commission decided to call for new tenders at once. These were received as follows:

B. J. Coghlin, Montreal.—$28.65 per gross ton, London payment. Shipments June, July and August.

James Cooper, Montreal (representing Chas. Cammell & Company, Limited, Sheffield, England).—$28.85 per gross ton, f.o.b. cars North Bay. Cash against documents, Montreal. Deliveries as required.

M. & L. Samuel, Benjamin & Company, Toronto.—$28.85 per gross ton, f.o.b. cars North Bay. Shipments as required. Name of makers not available.

Naylor & Company, New York.—Tender No. 1.—$28.38 per gross ton, f.o.b. cars North Bay. Shipments July, August, September and October. London payment. This offer subject to acceptance Friday, 20th February, 1903. T nders opened Saturday, 21st February, 1903.

Tender No. 2.—$28.86 per gross ton, London payment. Shipments June, July and August. Subject to acceptance before one o'clock p. m., Saturday, 21st February, 1903.

Gerald Lomer, Montreal.—$29.26 per gross ton, f.o.b. cars North Bay. Mr. Lomer would ask the Commission to delay the first shipment.

Drummond, McCall & Company, Montreal. "Barrow" rails, $29.55 per gross ton, f.o.b. cars North Bay. Shipments June, July and August.

Charles Cassils, Montreal (representing the Carnegie Steel Company). $30.15 per gross ton, f.o.b. cars North Bay.

Mr. Coghlin's quotation being for shipments June, July and August, which meant July, August and September deliveries, was not considered.

Messrs. Naylor & Company's offer of $28.38 for acceptance on Friday had of course expired when the tenders were opened on Saturday, and in any case this tender would not have been acceptable, as the shipments offered were July, August, September and October, which were too late for the requirements of the Commission. Their second offer of $28.86, being also for later shipments than required by the Commission, could not be considered.

The consideration therefore was narrowed down to the tenders of James Cooper, of Montreal, and M. & L. Samuel, Benjamin & Company, of Toronto; and the Chairman, Chief engineer and Secretary were appointed a Committee to consider these tenders, interview the representatives of both firms, and to close the matter as expeditiously and advantageously as possible. Messrs. M. & L. Samuel, Benjamin & Company had not furnished the name of the maker of the rail for which they were tendering, and the possibility of the imposition of an import duty on rails not being considered remote at that time, they were requested to definitely advise the Commission as to whether or not the rails were to be of English or German manufacture. Ample time was allowed for obtaining this information but it was not furnished, and the contract was awarded to Messrs. Cammell & Company, of Sheffield, England, through James Cooper, of Montreal, and is given below:

MEMORANDUM OF AGREEMENT made this Twenty-fifth day of February, in the year of our Lord one thousand nine hundred and three, between *Charles Cammell & Company, Limited*, of Sheffield, England, acting herein by its Agent, James Cooper, of Montreal, hereinafter called the "Contractor," of the one part; and *The Temiskaming and Northern Ontario Railway Commission*, hereinafter called the "Commission," of the other part;

Witnesseth, that the said Parties agree as follows:—

1. The Contractor agrees to furnish to the Commission free of all charges except Customs duties, if any, on cars at North Bay, Ontario, as hereinafter specified, eight thousand two hundred gross tons of steel rails in strict accordance with the Specifications hereto attached for the price of Twenty-eight dollars and eighty-five cents per gross ton of two thousand two hundred and forty pounds, f.o.b. cars at North Bay.

2. Not less than two thousand seven hundred gross tons of the said steel rails shall be so delivered during the month of May, one thousand nine hundred and three; not less than two thousand seven hundred additional gross tons during the month of June, one thousand nine hundred and three, and the balance of the contract, say two thousand eight hundred gross tons, during the month of July, one thousand nine hundred and three, time being agreed to be strictly of the essence of this contract.

3. In the event of stoppage or partial stoppage of the works of the Contractor, or shipments being delayed through strikes, accidents, breakage of machinery or other causes beyond the Contractor's control, of which the Commission shall be promptly notified, or in case any shipment or any part thereof shall be lost in transit, the Contractor shall be entitled to such addi-

tional time in respect of the whole or part of such deliveries, or any of them, as the Chief Engineer of the Commission for the time being shall decide and certify in writing to be fair and reasonable, having reference to the character and duration of such stoppage, delay or loss, and such Engineer shall be the sole and final judge as to the additional time to be allowed and as to what part of such deliveries or any of the same shall extend to, and his decision in every case shall be absolutely final and binding upon both parties. The last preceding clause of these presents shall be construed so far as relates to any portion of such deliveries or any of them affected by such extension of time as if the time fixed by the Engineer were the time fixed in said clause.

4. Within ten days from the date hereof the Commission shall communicate to James Cooper at Montreal an address in England where notice of the commencement of rolling and of the resuming of rolling from time to time may be given, and the Contractor shall give written notice at such address of the commencement of rolling at least fifteen days in advance of such commencement, and due notice of the resuming of rolling from time to time after the same shall have ceased.

5. The written certificate of the Inspector of the Commission provided for by said Specifications, certifying that the rails have been manufactured to his satisfaction in accordance with this contract, and the said Specifications shall be a condition precedent to the right of the Contractor to receive or be paid the price herein agreed to be paid for the same.

6. In case default shall be made by the Contractor in the delivery of any of the said rails in accordance with the terms of this contract, and the continuance of such default for thirty days, the said Commission may cancel this contract; but the Contractor shall nevertheless remain liable for all loss which may be suffered by the Commission by reason of the non-completion by the Contractor of this contract; provided, however, that credit shall be given to the Contractor notwithstanding such cancellation for the price of all rails which shall have been delivered by the Contractor in accordance with this contract and the said Specifications.

7. The cost of inspection provided for by the Specifications shall be borne by the Commission.

8. The Commission, in consideration of the premises, agrees to pay in Montreal funds for each shipment of said rails upon the arrival thereof in Montreal on presentation of invoices, English bills of lading and the Certificate of the Inspector of the Commission attached to each draft, but such payment shall not relieve the Contractor from the obligation to make deliveries at North Bay as aforesaid, nor from otherwise carrying out the terms of this Contract.

In witness whereof the Contractor has caused these presents to be executed on his behalf by James Cooper as his agent as aforesaid, and the said Commission has caused these presents to be executed under its Corporate Seal and hands of its Chairman and Secretary.

FOR CHAS. CAMMELL & CO., LIMITED:

(Sgd.) JAMES COOPER.
(Sgd.) F. H. HOPKINS.

In the presence of
(Sgd.) M. C. VENNOR.

FOR THE TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION:

(Sgd.) A. E. AMES,
Chairman.
(Sgd.) P. E. RYAN,
Secretary. (SEAL.)

In the presence of
(Sgd.) P. E. RYAN.
(Sgd.) H. W. PEARSON,
as to signature of P. E. Ryan.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY, 1902.

Specifications for 80-lb. Steel Rails.

Section.

Section 1. The section of the rail rolled shall conform to the American standard of the American Society of Civil Engineers, in accordance with plans attached, with an allowance in height of 1/64 of an inch under and 1/32 over, permitted in a delivery of 10,000 tons of rails. The fit of the fishing or "male" template shall be maintained perfect.

Section 2. The weight of the rail shall be kept as near to 80 lbs. per yard as is practicable after complying with Section No. 1.

Lengths.

Section 3. The standard length of rail shall be 33 ft. at a temperature of 60 degrees Fahrenheit. Ten (10) p.c. of the entire order will be accepted in shorter lengths, varying by even feet down to 27 feet, and all such shorter rails shall be painted green on ends. A variation in length of one-quarter of an inch longer or shorter than the above specified lengths will be allowed.

Finish.

Section 4. The rails must be free from all mechanical defects and flaws, and shall be sawed square at the ends, and the burrs made by the saws carefully chipped and filed off, particularly under the head and on top of the flange.

Section 5. The rails must be smooth on the heads, straight in all directions, both surface and line, and without any twist, waves or kinks; particular attention being given to having the ends without kinks or drop. The hot straightening shall be carefully done so that gagging under the cold-press will be reduced to the minimum, and so applied that the rails shall not be made "lumpy." None such will be accepted except as No. 2 rails.

Drilling.

Section 6. Bolt holes 1 1-16 inch in diameter shall be drilled through the web at 2 3/16 inches from the bottom of the flange; the centre of the first hole 2½ inches from the end of the rail and 6½ from the centre of the first to the centre of the second hole. These holes must be accurate in drilling in every respect and left without burrs. (Plan attached.)

Branding.

Section 7. The letters "T. & N. O. P.," weight of rail, number of charge, name of maker, month and year of manufacture, shall be marked in plain letters and figures on the side of the web of the rail, in such a position as not to be covered by the fish plates when laid in the track.

Composition.

Section 8. The rail in composition must be hard, sound and tough, showing fine, dense grained metal on fracture. The carbon shall average 0.50 p.c.

within limits not less than 0.45 p.c., nor over 0.55 p.c. The phosphorus shall not exceed 0.07 p.c. The sulphur shall not exceed 0.075 p. c. The silicon shall not exceed 0.20 p.c., nor be below 0.10 p.c. The manganese shall not exceed 0.80 p.c. to 1.00 p.c.

Heat Treatment.

Section 9. The number of passes and speed of train shall be so regulated that on leaving the rails at the final pass the temperature of the rail will not exceed that which requires a shrinkage allowance at the hot saw of six inches for rails of 80-lb. section, and no artificial means of cooling shall be used between the final pass and the hot saw.

Tests.

Section 10. While the heat is being cast two test-ingots shall be made, the first from steel going into the first regular ingot, the other from metal representing the last one. These test ingots shall be 3 x 3 inches and not less than 4 inches long. From these bars at least one-half inch square shall be drawn at one heat by hammering. Each bar when cold shall be bent, without breaking, to not less than a right angle. Should one bar from a heat fail and another stand the test, a third bar may be taken from a bloom rolled from the ingot represented by the failed one. If this stands the test it shall be accepted in lieu of the failed one. If the makers choose, more than the two test-ingots may be taken, but they must be from the steel of the first and last regular ingots. If this is done and a test bar fail another one may be drawn from the duplicate ingot and tested, and, if it stands, accepted.

Drop Tests.

Section 11. A rail-butt from each conversion shall be placed either head or base upwards on solid steel or iron supports, the distance apart of which in the clear shall be 3 feet for sections up to and including 70 lbs., and 4 feet for all heavier ones, and upon it shall be dropped a weight of 2,000 lbs., falling freely from a height of 16 feet for 70 lbs., and 20 feet for all heavier rails. Should a test fail to stand the drop without breaking a second one may be made. If it also fails all rails made from that heat shall be rejected; but if the second test stands then a third one shall be made, and if this be successful the rails of that conversion shall be accepted.

Treatment of Ingots.

Section 12. After the ingots are cast they shall be either constantly kept in an upright position until ready to be rolled, or else so maintained until the interior steel has had time to solidify.

Section 13. No "bled" ingots, or ingots from "chilled" heats shall be used in the manufacture of rails under this contract.

Section 14. No ingots from badly teemed heats shall be used, excepting as they shall be subject to the provisions of Section 18.

Cutting of Blooms.

Section 15. After cutting off or allowing for the "sand" or top end of each ingot, at least 12 inches more of seemingly solid steel shall be cut off

that end of the bloom, a greater length than 12 inches being preferred; and if, after cutting such a length the steel does not look solid, the cutting shall continue until it does.

HEATING.

Section 16. Care shall be taken to avoid overheating the steel, and under no circumstances shall a cinder heat be allowed; that is, a heat high enough to cause the cinder to run off the steel as it is being drawn from the furnace. This does not apply to cinder which may be sticking to the underside of the steel when drawn from a horizontal furnace, or to the bottom of an ingot when drawn from a soaking pit.

INSPECTION.

Section 17. Inspectors representing the purchaser shall have free entry to the works of the makers at all times while this contract is being filled, and shall have all reasonable facilities afforded to satisfy them that the rails are being made in accordance with these specifications. The makers shall furnish them with the carbon determinations of each heat, and a sufficient number of complete analysis to represent the average steel of each day's work.

Section 18. The Inspectors shall have authority to reject rails made from insufficiently sheared blooms, or from heats, the test pieces or drop tests of which have failed; or from badly poured heats, or from "chilled" heats, or from "bled" ingots. The rails made from insufficiently cut blooms, if otherwise perfect, to be afterwards received as No. 1 short rails if sufficient lengths have been sawed off to make an amount of steel equal to the original demand of 12 inches. The rails made from heats, the test pieces or drop tests of which have failed, may be accepted as No. 2 rails. The rails from a badly poured heat may be received as No. 2 rails, but if made from a "chilled" heat or "bled" ingot are to be absolutely rejected. By a badly poured heat is meant one which from any cause has been teemed without the control of the operator. A "chilled" heat is one which by reason of the chilling of the steel has to be either pricked or poured over the top of the ladle. A "bled" ingot is one from the centre of which the liquid steel has been permitted to escape.

Section 19. Imperfectly drilled, straightened (except "lumpy") rails, or chipped and filed rails, shall be rejected, but will be accepted after being properly finished.

Section 20. Rails failing to comply with Section 1 will be rejected as No. 1 rails.

NO. 2 RAILS.

Section 21. The requirement for No. 2 rails shall be the same as for No. 1, except that they will be accepted with a flaw in the head not exceeding ¼ inch, and flaws in the flanges not exceeding ½ inch in depth, and may have been made from an imperfectly poured ingot, or from heats of which the test bars or drop tests have failed.

Section 22. No. 2 rails to the extent of 5 p.c. of the whole order will be received at a price 5 p.c. less than paid for No. 1 rails. All such rails must be painted white on ends and kept separate from No. 1 rails.

(Sgd.) W. B. RUSSEL,
Chief Engineer.

North Bay, Oct. 30th, 1902.

On 23rd February the Chief Engineer requisitioned for an additional quantity of 1,500 tons of the same quality rails as had been ordered from Mr. Cooper, and the Commission increased the contract with James Cooper from 8,200 gross tons to 9,700 gross tons, the provisions of the contract already signed to be considered as covering the additional quantity ordered, with the exception that the delivery of the additional quantity should be made not later than the month of September, 1903.

CONTRACT FOR BALANCE OF RAILS REQUIRED TO COMPLETE TRACK-LAYING TO NEW LISKEARD.

The Chief Engineer having requisitioned for 6,000 gross tons of 80-lb. steel rails in accordance with the Commission's specifications, for delivery 2,000 tons during the month of May, 2,000 tons during the month of June, and 2,000 tons during the month of July, 1904, tenders were called for by the Commission and opened on 16th December. The tenders received were as follows:

United States Steel Products Export Company. $25.15 per gross ton, f.o.b. North Bay, Ont.

Drummond, McCall & Company, Montreal. For "Barrow" rails, $25.90 per gross ton, f.o.b. North Bay.

A. T. Drummond & Company. (Quoting for Guest, Keen & Nettlefolds, Limited, Birmingham, England.) $25.79 per gross ton f.o.b. North Bay, Ont.

A. G. Kidston & Company, Glasgow, Scotland. £5 4s. 6d. per gross ton, London.

M. & L. Samuel, Benjamin & Company, Toronto. $26.20 per gross ton, f.o.b. North Bay, Ont.

B. J. Coghlin & Company, Montreal. $26.50 per gross ton, f.o.b. North Bay, Ont.

Watsmon, Jack & Company, Montreal. £5 4s. per gross ton, f.o.b. North Bay, Ont.

Estate late James Cooper, Montreal. (Quoting for Chas. Cammell & Co.) $25.90 per gross ton, f.o.b. North Bay, Ont.

Gerald Lomer, Montreal. (Quoting for Suren, Hartman & Co., London.) $26.50 per gross ton, f.o.b. North Bay, Ont. (And for the Lackawana Steel Co.) $25.40 per gross ton, f.o.b. North Bay, Ont.

After carefully considering the tenders the Commission decided they were too high, and to call for new tenders to reach the office of the Commission on or before Monday, the 28th instant.

New tenders were accordingly called for, and at the meeting on 29th December the following tenders were received:

United States Steel Products Export Company, Montreal. $24.40 for first quality rails, f.o.b. cars North Bay, Ont. $23.40 for second quality rails, f.o.b. cars North Bay, Ont.

Watson Jack & Company, Montreal. (Quoting for the Rheinische Stahlwerke in Ruhrort.) £5 1s. 0d., or $24.57 at par of exchange, per gross ton, c.i.f. North Bay, Ont. Payment by approved bankers' sight letter of credit in London, available against shipping documents in London.

Gerald Lomer, Montreal. (Quoting for the Lackawanna Steel Company.) For *first* quality, $24,70 per gross ton, f.o.b. cars North Bay, Ont. For *second* quality, $23.70 per gross ton, f.o.b. cars North Bay, Ont.

Estate of the late James Cooper, Montreal. (On behalf of Messrs. Chas. Cammell & Company, Sheffield, England.) $25.25 per gross ton, f.o.b. cars North Bay, Ont.

A. T. Drummond & Company, Montreal. (On behalf of Guest, Keen & Nettlefolds, Limited.) $25.29 per gross ton, f.o.b. cars North Bay, Ont.

Drummond, McCall & Company, Montreal. (On behalf of the Barrow Hematite Steel Company, Limited, of Barrow-in-Furness, England.) $25.65 per gross ton, f.o.b. cars North Bay, Ont.

C. W. Leavitt & Company, New York. $25.80 per gross ton, f.o.b. cars North Bay, Ont. (Subject to cable confirmation by principals.)

B. J. Coghlin & Company, Montreal. (On behalf of the Pennsylvania Steel Company.) For *best* quality, $26.20 per gross ton, f.o.b. cars North Bay, Ont.; with 5 p.c. *second* quality rails, $25.20 per gross ton, f.o.b. cars North Bay, Ont.

The rails furnished by Messrs. Charles Cammell & Company in fulfillment of their first contract being highly commended by the Chief Engineer, who expressed a preference for them over American rails, the Commission decided to make an offer to Messrs. Charles Cammell & Company's representative of $25 per gross ton, which was accepted, and a contract was entered into in the same terms as the former contract, the only differences being those of price and delivery.

ORDERS FOR RAIL-FASTENINGS.

The purchase of 780,000 track spikes in accordance with blue print and specifications, at $2.50 per 100 lbs., delivered f.o.b. cars North Bay, from Pillow & Hersey Manufacturing Company, Limited, of Montreal; of 89,000 track bolts, $4\frac{3}{4}$ x7-8, as per drawing and specification, at $3.45 per 100 lbs., delivered f.o.b. cars North Bay, from the Toronto Bolt & Forging Company, Limited, of Toronto, and of 89,000 "Positive" nut-locks for 7-8 bolt, at $8.50 per thousand, delivered f.o.b. cars North Bay, from Messrs. A. Holden & Company, of Montreal, was reported in the Commission's First Annual Report. These orders were increased proportionately to the increase of 1,500 tons in the order for steel rails. The orders after having been increased stood as follows: 930,000 track-spikes, 105,000 track-bolts, 105,000 nut-locks.

Tenders for angle-bars were received as follows: The prices given are f.o.b. cars, North Bay; deliveries required were one-third each during the months of May, June and July, 1903.

The Hamilton Steel & Iron Company, Hamilton. $1.90 per 100 lbs. Equivalent to $42.56 per gross ton.

James Cooper, Montreal. $43.75 per gross ton, duty paid.

Gerald Lomer, Montreal. $1.81½ per 100 lbs., duty paid. Equivalent to $40.65 per gross ton. This price was based on the then duty on angle-bars, namely, $8 per gross ton. Mr. Lomer also submitted a tender of $41.44 per gross ton, f.o.b. cars North Bay, in which he agreed to assume the risk of an increase in the duty.

Naylor & Company, New York. Exclusive of duty; subject to cable information on receipt of details to specifications.

Algoma Steel Company. $48.16 per gross ton.

M. & L. Samuel, Benjamin & Company. $1.62½ per gross ton in bond. duty. Equivalent to $43 per gross ton.

M. & L. Samuel Benjamin & Company. $1.62½ per gross ton in bond. Equivalent to $36.40 per gross ton, plus $8 duty, or $44.40 per gross ton, duty paid.

Nova Scotia Steel & Coal Company. $1.75 per 100 lbs. f.o.b. cars New Glasgow. Freight about 32½ cents per 100 lbs., or 2.07½ cents North Bay. Equivalent to $46.47 per gross ton.

The tender of the Hamilton Steel & Iron Company being but $1.12 per gross ton in excess of the tender of the German manufacturers, at which they agreed to assume the risk of an increase in duty, was accepted.

An order for 37,000 tie-plates, "Q. & W." pattern, to conform with blue print and specification, was placed with the Hamilton Steel & Iron Company, of Hamilton, at 11 1-3 cents each, delivered f.o.b. cars North Bay, which was the lowest tender received for a tie-plate in accordance with the drawing and specification of the Commission.

CONTRACT FOR LOCOMOTIVES.

Quotations for four ten-wheeled Locomotive Engines, cylinders 19 inches diameter x 24 inch stroke, driving wheels 56 inches diameter, weight of engine about 133,000 lbs. in working order, weight of tender about 96,000 lbs. in working order, tank capacity about 4,000 imperial gals., were received from the Canadian Locomotive Company, Limited, of Kingston, of $16,000 each delivered on tracks at Kingston, and from the Baldwin Locomotive Works, of Philadelphia, of $11,100 each delivered on tracks at Toronto, exclusive of Customs duties, or with the duty added $14,985. The American Locomotive Company were also asked to quote, but stated that their engagements were such that they could not promise the delivery asked for. The Commissioners favoured the placing of the order with the Canadian Company, as an advantage would accrue to the Commission in being able to obtain duplicate parts in Canada and this quotation was accordingly accepted. The contract, which was entered into between the Company and the Commission is given below. The price agreed upon was understood to be as low as any they were obtaining at the same period for engines of the same class.

ARTICLES OF AGREEMENT, made (in duplicate) this fourteenth day of April, in the year of our Lord, one thousand nine hundred and three.

Between *The Canadian Locomotive Co., Limited*, hereinafter called "The Contractor," of the first part; and *The Temiskaming and Northern Ontario Railway Commission*, hereinafter called "The Commission," of the second part:

Witnesseth: 1. In this contract the word "Inspector" shall mean the Inspector for the time being appointed by the Commission to represent and act for the Commission in the supervision of the construction and in the inspection and certification of the locomotive engines hereinafter referred to.

2. The Contractor will supply and provide all and every kind of work, labour, materials, articles and things whatsoever, necessary for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner, four ten-wheeled locomotive engines with all necessary appliances for use on the line of the railway of the Commission in strict compliance with the specifications and drawings hereunto annexed to the complete satisfaction of the Inspector, and will deliver the same duly completed to the Commission free on the railway tracks of the Grand Trunk Railway Company, or of the Kingston and Pembroke Railway Company, at the City of Kingston, as follows: Two of the said locomotive engines on or before the thirtieth day of April, one thousand nine hundred and four; and

the remaining two on or before the thirty-first day of May, one thousand nine hundred and four, time being agreed to be material and of the essence of this contract.

3. The Inspector shall be the sole judge of all work and material done and supplied under this contract, and his decision on all questions in dispute with regard to any such work or material shall be final, and the whole work shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor. Provided, however, that in case the Contractor shall be dissatisfied with the decision of the Inspector on any question in dispute the Contractor shall on giving written notice to the Secretary of the Commission within ten days from notice to the Contractor of such decision have the right to appeal therefrom to the Superintendent for the time being of motive power of the Canadian Northern Railway Company, and in case of any such appeal the decision of such Superintendent thereon shall be final and binding upon both parties.

4. The Inspector and all persons from time to time authorized by him in that behalf shall have free entry and access to the works of the Contractor at all times while this contract is being performed, and shall have all reasonable facilities afforded to him and his representatives as aforesaid to satisfy them that the same is being carried out and performed in accordance with this contract.

5. The acceptance and payment for any of the said engines by the Commission shall not be considered as any waiver of the obligations of the Contractor with reference to the others.

6. This contract shall not be considered as fully completed until the guarantee clause in the attached specification respecting wheels, springs, axles, etc., has been fully complied with. The books kept in the office of the Mechanical Superintendent of the Commission shall be taken as final and conclusive evidence of the time said wheels, springs, axles, etc., have lasted in service.

7. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract (except the fulfillment of the guarantee, which is to continue for two years) on the Contractor's part intended to be fulfilled and performed will be paid for, and in respect of each of the said engines so delivered as aforesaid the sum of sixteen thousand five hundred ($16,500) dollars cash payment to be made within thirty days after delivery of each engine.

In witness whereof the said parties have caused these presents to be executed under their respective Corporate Seals and under the hands of the proper officers in that behalf.

CANADIAN LOCOMOTIVE COMPANY, LIMITED,

(Sgd.) C. BIRMINGHAM, (SEAL.)
Managing Director.

(Sgd.) A. E. AMES, (SEAL.)
Chairman.

(Sgd.) P. E. RYAN,
Secretary.

CONTRACT FOR FLAT AND BOX-CARS.

Tenders to furnish one hundred flat and fifty box-cars, in accordance with the plans and specifications of the Commission, were received as follows:

Messrs. Rhodes, Curry & Company. For the flat-cars, $710 each, delivered at North Bay. For the box-cars, $960 each, delivered at North Bay. These prices include an allowance of $40 for the transportation of each car from Amherst, N. S., to North Bay, which it was thought by the Company might be eliminated altogether, or considerably reduced, by having the cars loaded for the West and hauled free or at a reduced rate, and they promised to give the Commission the benefit of any saving which could be effected in this way.

The Rathbun Company. For the flat-cars, $729 each, delivered at North Bay, the Commission to supply the air-brakes. For the box-cars, $950 each, delivered at North Bay, the Commission to supply the air-brakes. Adding the cost of air-brakes ($25 per set), to these prices, the cars would cost as below:—For the flat-cars, $754, delivered at North Bay. For the box-cars, $975, delivered at North Bay.

The Crossen Car Manufacturing Company. For the flat-cars, $750 each, delivered at North Bay. For the box-cars, $1,035 each, delivered at North Bay.

Drummond, McCall & Company. (For the Algoma Central and Hudson's Bay Railway Company.) For the flat-cars, $765.48, delivered at North Bay. For the box-cars, $870.64, delivered at North Bay.

The decision of the Commission was that the order for the flat-cars should be given to Messrs. Rhodes, Curry & Company at the price quoted, and that the order for the box-cars should be placed with the Rathbun Company, of Deseronto, Ont., whose price was only slightly in excess of that of the Nova Scotia house, provided that the Rathbun Company would be prepared to build the cars for a price less than or not exceeding that of the Nova Scotia Company. The Company subsequently reduced their price for the box-cars to $930 f.o.b. North Bay, the Commission to furnish the air-brakes. The contracts entered into with Messds. Rhodes, Curry & Company and the Rathbun Company, respectively, follow:—

ARTICLES OF AGREEMENT made (in duplicate) this Fourteenth day of August, one thousand nine hundred and three, between *Rhodes, Curry & Company, Limited,* hereinafter called "The Contractor," and *The Temiskaming and Northern Ontario Railway Commission,* hereinafter called "The Commission."

Witnesseth:

1. In this contract the word "Inspector" shall mean the Inspector for the time being appointed by the Commission to represent and act for the Commission in the supervision of the construction and in the inspection and certification of the platform cars hereinafter referred to.

2. The Contractor will supply and provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner one hundred platform cars, with all necessary appliances for use on the line of railway of the Commission, in strict compliance with the specifications hereto annexed, and with the plans and drawings relating thereto (save and except that the Westinghouse automatic quick-action air-brake apparatus in said specifications mentioned shall be furnished by the Com-

mission, subject to the said cars being properly equipped therewith by the Contractor) to the complete satisfaction of the Inspector, and the said Contractor will deliver the said cars duly completed to the Commission, free, on the railway tracks of the Commission at the town of North Bay during the month of May, one thousand nine hundred and four, or earlier, if such earlier delivery shall be agreeable to both of the parties hereto, time being agreed to be material and of the essence of this contract.

3. Subject only to the right of appeal provided for by the said specifications the Inspector shall be the sole judge of all work and material done and supplied under this contract, and his decision on all questions in dispute with regard to any such work or material shall be final, and the whole work shall be executed to his satisfaction, as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

4. The Inspector and all persons from time to time authorized by him in that behalf shall have free entry and access to the works of the Contractor at all times while this contract is being performed, and shall have all reasonable facilities afforded to him and his representatives as aforesaid to satisfy them that the same is being carried out and performed in accordance with this contract.

5. The acceptance and payment for any of the said cars by the Commission shall not be considered as any waiver of the obligations of the Contractor with reference to the others.

6. This contract shall not be considered as fully completed until the guarantee clause in the attached specifications respecting wheels, springs, axles, etc., has been fully complied with. The records of the Commission shall be taken as final and conclusive evidence of the time the said wheels, springs, axles, etc., have lasted in service.

7. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract, except the fulfillment of the guarantee, which is to continue for three years, on the Contractor's part intended to be fulfilled and performed, will be paid for and in respect of each of the said cars so delivered as aforesaid the sum of $681.50 cash payments to be made within thirty days after delivery of each car: provided and it is hereby understood and agreed, that the said sum of $681.50 shall include the item of $40 for the transportation of each car to the railway tracks of the Commission at North Bay; and in the event of the Contractor being able to make arrangements by which any car may be loaded and transported to North Bay as aforesaid, free of costs or for any less cost than $40, then the Commission shall receive the benefit of any such arrangement, and the price to be paid the Contractor for every such car so transported free of cost, or at a less cost than $40, shall be reduced accordingly.

In Witness Whereof the said parties have caused these presents to be executed under their respective corporate seals, and under the hands of the proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of G. GOLDING BRICE.

RHODES, CURRY & CO., Limited.
(Signed) N. CURRY, President.
" J. M. CURRY, Sec'y-Treas.
(SEAL.)

(Signed) THE TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION.

(Signed) A. E. AMES, Chairman.
" P. E. RYAN, Secretary.

ARTICLES OF AGREEMENT made (in duplicate) this Fourteenth day of August, one thousand nine hundred and three, between *The Rathbun Company*, hereinafter called "The Contractor," of the first part; and *The Temiskaming and Northern Ontario Railway Commission*, hereinafter called "The Commission," of the second part.

Witnesseth:

1. In this contract the word "Inspector" shall mean the Inspector for the time being appointed by the Commission to represent and act for the Commission in the supervision of the construction and in the inspection and certification of the box cars hereinafter referred to.

2. The Contractor will supply and provide all and every kind of work, labour, materials, articles and things whatsoever for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner fifty box-cars, with all necessary appliances for use on the line of railway of the Commission, in strict compliance with the specifications hereto annexed, and with the plans and drawings relating thereto (save and except that the Westinghouse automatic quick-action air-brake apparatus in said specifications mentioned shall be furnished by the Commission subject to the said cars being properly equipped therewith by the Contractor) to the complete satisfaction of the Inspector, and the said Contractor will deliver the said cars duly completed to the Commission free on the railway tracks of the Commission at the Town of North Bay during the month of May, one thousand nine hundred and four, or earlier if such earlier delivery shall be agreeable to both of the parties hereto, time being agreed to be material and of the essence of this contract.

3. Subject only to the right of appeal provided for by the said specifications the Inspector shall be the sole judge of all work and material done and supplied under this contract, and his decision on all questions in dispute with regard to any such work and material shall be final, and the whole work shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

4. The Inspector and all persons from time to time authorized by him in that behalf shall have free entry and access to the works of the Contractor at all times while his contract is being performed, and shall have all reasonable facilities afforded to him and his representatives as aforesaid to satisfy them that the same is being carried out and performed in accordance with this contract.

5. The acceptance and payment for any of the said cars by the Commission shall not be considered as any waiver of the obligations of the Contractor with reference to the others.

6. This contract shall not be considered as fully completed until the guarantee clauses in the attached specifications respecting wheels, springs, axles, journal bearings and journals have been fully complied with. The records of the Commission shall be taken as final and conclusive evidence of the time the said wheels, springs, axles have lasted in service, and of the time the said journal bearings and journals have run cool as by said specifications required.

7. The Commission, in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract (except the fulfillment of the guarantee as to the wheels, springs, axles, etc., which is to continue

for three years, and the guarantee as to journal bearings and journals, which is to continue for two months) on the Contractor's part intended to be fulfilled and performed will be paid for, and in respect of each of the said box cars so delivered as aforesaid the sum of nine hundred and thirty dollars cash, payments to be made within thirty days after delivery of each car.

In Witness Whereof the said parties have caused these presents to be executed under their respective Corporate Seals, and under the hands of the proper officers in that behalf.

SIGNED, SEALED AND DELIVERED
in the presence of

(Signed) THE RATHBUN COMPANY, (SEAL.)
" per E. WALTER RATHBUN, Assist. Gen. Manager.
" " C. A. MILLENER, Sec'y-Treas.
" THE TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION. (SEAL.)
" A. E. AMES, Chairman.
" P. E. RYAN, Secretary.

TIE CONTRACTS.

In their First Annual Report the Commission reported the letting of a contract for 175,000 railway ties. Towards the close of February, 1903, the Chief Engineer reported that the Tie Contractor, Thos. Wallace, was making satisfactory progress, and as the grading was progressing faster than he had at first expected the Commission would require the delivery of more ties than arranged for, and that as the season was already so far advanced it would be difficult for other parties to get the extra ties out during the spring or summer season, and as the contractor for the 175,000 ties would succeed in filling his contact at the very low price at which the contract was closed, he would recommend that the Commission contract with the Tie Contractor to furnish an additional quantity of 50,000 ties at the price of 25 cents each if the Contractor should be allowed to cut in the Forest Reserve, or 27 cents each if he were not permitted to cut in the Reserve. The Commission approved of the Engineer's recommendation, and a new contract was entered into with Thos. Wallace, a copy of which is given below:

ARTICLES OF AGREEMENT made (in duplicate) this 23rd day of March, in the year of our Lord one thousand nine hundred and three.

Between *Thomas Wallace*, of the Town of North Bay, in the District of Nipissing, Merchant, hereinafter called "The Contractor," of the first part; *The Temiskaming and Northern Ontario Railway Commission*, hereinafter called "The Commission," of the second part; and *William McKenzie*, of the said Town of North Bay, Customs Officer, and *Edgar Seymour Reade*, of the City of Toronto, and County of York, Manufacturer, hereinafter called "The Sureties," of the third part.

Whereas, by Articles of Agreement made between the parties of the first and second parts hereto, and dated the seventh day of November, in the year of our Lord one thousand nine hundred and two, the Contractor agreed to deliver to the Commission at such points on the first sixty miles of the right

of way of the railway of the Commission, as might from time to time be directed and approved by the Commission's Chief Engineer, one hundred and seventy-five thousand railway ties in accordance with, on the terms and at the price set out in the said contract.

And Whereas the Contractor and the said William McKenzie by their joint and several bond attached to the said contract bound themselves to the Commission in the penal sum of Three thousand dollars for the due and faithful performance by the Contractor of the said contract according to the true intent and meaning thereof, as by said bond more fully appears.

And Whereas the said Edgar Seymour Reade as additional security for the due performance by the Contractor of the said contract deposited with the Commission the sum of fifteen hundred dollars cash.

And Whereas it has now been agreed between the parties hereto that in addition to the said one hundred and seventy-five thousand railway ties, the Contractor shall, subject to the terms and in consideration of the price hereinafter mentioned, sell and deliver to the Commission fifty thousand additional railway ties, and that the said bond of the Contractor and the said Wililam McKenzie attached to the said contract of the seventh day of November, in the year of our Lord one thousand nine hundred and two, and the said sum of Fifteen hundred dollars cash deposited by the said Edgar Seymour Reade as aforesaid, shall be held by the Commission as and shall constitute security for the due performance by the Contractor of this Agreement, as well as of the said Agreement of the Seventh day of November, in the year of our Lord one thousand nine hundred and two.

Now these presents Witness: 1. *That* the Contractor for the consideration hereinafter mentioned hereby agrees to deliver to the Commission at such points from the sixtieth to the seventy-third mile from North Bay of the right of way of the Temiskaming and Northern Ontario Railway as may from time to time be directed and approved by the Commission's Chief Engineer or his agent duly authorized in that behalf, fifty thousand railway ties made from sound hemlock, tamarack, or cedar timber of good merchantable quality, and of the following dimensions, namely, seven inches thick, and not less than six inches face inside of bark on both faces at the small end or in every portion of the tie, and exactly eight feet long, to be sawn or hewed on two parallel sides and sawn or hewed square on both ends, to be delivered and piled completely ready for inspection as follows:—At least twenty-five thousand on or before the First day of October, one thousand nine hundred and three, and the balance, say twenty-five thousand, on or before the first day of November, one thousand nine hundred and three, or on or before such other dates as on the written application of the Contractor for an extension of time the Engineer may in writing substitute for said dates or either of them. Time shall be deemed to be material and of the essence of this contract.

2. Ties shall be piled with even ends on one side, and each pile shall be on a level with and not less than fifteen feet nor more than twenty-five feet from the centre line of the right of way, with at least three feet between piles to permit inspection at both ends of the ties. Ties taken from the water shall be piled in square piles in such manner as to permit of free circulation of air around each tie.

3. The Contractor shall pay in cash for all ties purchased by him from the price of which shall be payable either wholly or partly in goods or otherwise than in actual cash.

4. The Contractor shall be bound to furnish satisfactory evidence to the Engineer from time to time, as requested by the Engineer, of his having complied with the provisions of the last preceding clause hereof, and as to the land upon which all ties delivered from time to time have been cut, and that the Contractor or other party cutting same had the legal right to cut such ties and dispose of them, and that the same are free from all liens and attachments: and until such evidence to the satisfaction of the Engineer is furnished, and until ties from time to time are actually accepted and marked by the Engineer the same shall be at the risk of the Contractor. Cash payments equal to about ninety per cent. of the value of the ties so delivered and accepted shall be made to the Contractor monthly on the written certificate of the Engineer that such ties have been so delivered and accepted and such evidence furnished as aforesaid, and the said certificate shall be a condition precedent to the right of the Contractor to be paid the said ninety per cent. or any part thereof. The remaining ten per cent. shall be retained until the final completion of the whole work to the satisfaction of the Engineer, and until the Engineer shall be satisfied that all wages of all workmen, labourers and servants of the Contractor and of all sub-contractors under him, as well as the price of all ties purchased by the Contractor from other parties have been duly paid, whereupon the Engineer shall give his final certificate accordingly; and such remaining ten per cent., or the balance payable to the Contractor as found by the Engineer, shall be paid to him by the Commission within forty days after the granting of such final certificate; and it is hereby declared that the written certificate of the Engineer certifying to the final completion of this contract as aforesaid shall be a condition precedent to the right of the Contractor to receive or to be paid the said remaining ten per cent. or the said balance or any part thereof.

5. The decision of the engineer as to whether ties conform to and are delivered in accordance with the terms of this contract shall be final. Culled ties must be promptly removed from the railway right of way unless arrangements are made for their purchase by the Commission at a reduced rate.

6. If the Contractor shall become bankrupt or insolvent or shall make an assignment for the benefit of his creditors, or shall compound with his creditors, or propose any composition to his creditors for the settlement of his debts, or shall attempt to transfer, sub-let or assign this contract or any part thereof without the consent in writing of the Engineer, or if by the report of the Engineer it shall appear that the rate of progress of the said work is not in the opinion of the other parties, and shall not directly or indirectly contract for ties for said work Engineer such as to insure the completion of same within the time herein prescribed, or within such additional time as may have been granted by the Engineer as aforesaid, or in case no additional time has been granted, and the said works are not completed within the time limited, or in case of additional time being granted as aforesaid, then if the same are not completed within such additional time, or if the Contractor shall, in the opinion of the Engineer, who shall be the sole and absolute judge in that behalf, persist in any course violating any of the provisions of this contract, the Commission shall have the power and right, at its discretion, without previous notice and without process of law, to take the work or any part thereof out of the hands of the Contractor, and either re-let the same to any other person or persons without previous advertisement, or to employ workmen, and to provide material, tools and other necessary things at the expense of the Contractor, or to take such other steps as the said Commission may consider necessary in order to secure the completion of the said work; and in any such case the Contractor shall have no claim to any further pay-

ment in respect of work performed, but all things done and means employed under this clause by the Commission shall be as binding on the Contractor as if the things done and means employed had been done and employed by him under this contract; but the Contractor shall nevertheless remain liable for all loss and damages which may be suffered by the Commission by reason of the non-completion by the Contractor of the work, or by reason of any of the matters aforesaid, which damages shall be deemed to include all salaries or wages which shall be payable to the person or persons superintending the work on behalf of the Commission, and no action or claim shall be raised or made by the Contractor by reason or on account of the ultimate cost of the work so taken over proving greater than in the opinion of the Contractor it should have been, and the amount of all such loss shall be computed and ascertained by the Engineer, whose certificate certifying to the amount thereof shall be final and binding upon all parties, but notwithstanding any of the matters aforesaid the Contractor shall receive credit for all amounts owing to him for the part of the work which he shall have performed, subject, however, to the right of the Commission to deduct therefrom all such loss and damage as aforesaid so certified to by the Engineer.

7. Should the Contractor not complete the work, notwithstanding any delay or hindrance by the Commission, to the satisfaction of the Engineer on or before the dates aforesaid, or on any substituted dates as above provided, he shall at the option of the Commission in lieu of liability to pay damages and expenses as provided in the last preceding clause, pay to the Commission by way of liquidated and ascertained damages the sum of twenty dollars for each day which may elapse after the respective dates or substituted dates as aforesaid before the whole work shall be completely executed to the satisfaction of the Engineer.

8. The Contractor shall not in any way, without the consent in writing of the Engineer first had and obtained, dispose of, assign, sub-let or re-let the work embraced in this contract or any portion thereof.

9. The said bond of the said Contractor and the said William McKenzie shall be construed and read as if the said bond were conditioned in addition to the condition therein set forth upon the said Contractor, his heirs, executors, administrators or assigns, well and faithfully doing all the work and furnishing all the materials and observing and performing all the matters and things required to be done, furnished, observed and performed by him or them under this contract, within the times, in the manner and according to the true intent and meaning of this contract, and the said sum of fifteen hundred dollars paid by the said Edgar Seymour Reade shall be and continue security to the said Commission for the due and faithful observance and performance by the Contractor of this contract, as well as of the said contract of the seventh day of November, one thousand nine hundred and two, to which the sureties severally agree, as testified by the execution by them of these presents.

10. And the Commission in consideration of the premises hereby covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled the covenants and agreements herein contained and on the Contractor's part intended to be fulfilled, will be paid on the terms aforesaid for each and every tie delivered and accepted as above as follows:— For each tie cut on Crown Lands upon which the Contractor or any Sub-Contractor or any person from whom the Contractor or Sub-Contractor shall purchase the same shall have paid Government dues thereon, the sum of twenty-seven cents, and for each tie upon which Government dues shall not

have been paid by the Contractor or any Sub-Contractor or other person as aforesaid, the sum of twenty-five cents.

11. The word "Contractor" wherever it appears in this Contract shall be held to mean and include the Contractor, his heirs, executors and administrators; and the word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work of construction of the line of railway.

In Witness Whereof this Agreement has been duly signed, sealed and executed by the said Contractor and the said Sureties, and duly executed by the said Commission under its Corporate Seal and under the hands of its Chairman and Secretary.

Signed, Sealed and Delivered in the presence of (Sgd.) E. S. SENKLER, as to the signatures of Thos. Wallace and W. McKenzie. (Sgd.) THOS. WALLACE (SEAL.) (Sgd.) W. McKENZIE, (SEAL.) (Sgd.) EDGAR S. READE. (SEAL.)

(Sgd.) D. E. THOMSON, as to execution of Edgar S. Reade.

..... as to signature of A. E. Ames. (Sgd.) A. E. AMES, *Chairman.* (SEAL.)

(Sgd.) E. RUICKBIE, as to signature of P. E. Ryan. (Sgd. P. E. RYAN, *Secretary.*

Tenders were called for and opened in the month of September for 135,000 ties to be delivered on the right of way between the seventy-second and one hundred and twelfth mile, at such points as would be approved by the Tie Inspector as follows:

Name.	Cedar.	Tamarac.	Hemlock.	Jack-Pine.
James Doyle	21 cents.	21 cents.	21 cents.	21 cents.
Thomas A. Low F. X. Plaunt	33 "	33 "	27 "	31 "
A. R. Macdonell	30 "	30 "	30 "	30 "
Louis Berlanquet	24½ "	25 "	25 "	25 "
Hugh A. McNeil	25¾ "	25¾ "	25¾ "	25¾ "
John Armstrong	24¾ "	24¾ "	24¾ "	24¾ "
H. Maclean	25 "	24 "	25 "	24 "
Thomas Wallace	14 "	23 "	15 "	23 "

The tender of Thomas Wallace was the lowest, but it was inferred from his tender that he purposed furnishing only Tamarack and Jack-pine ties, and the Commission not desiring a large quantity of Jack-pine intimated to Mr. Wallace that they were disposed to accept his tender provided he would agree to restrict the amount of Jack-pine which he would furnish to 10 p.c. of the whole quantity. There seemed to be a doubt as to whether or not Mr. Wallace intended that his tender should cover the cost of delivering the ties along that portion of the right of way which ran through the country under

timber license at the Northern end of the line, and in order that Mr. Wallace might have an opportunity of speaking as to this he was invited to meet a Committee. At this meeting Mr. Wallace stated that he had not figured on delivering the ties along this section of the road where they could not be cut, nor did he understand that the privilege of delivering the ties below the seventy-second mile would be withheld from him provided he agreed to furnish not more than 10 p. c. Jack-pine. The desire of the Commission that the ties should be delivered between the seventy-second and one hundred and twelfth miles was explained to Mr. Wallace, and the contract was awarded to him on the basis of delivery between the seventy-second and one hundred and twelfth miles wherever directed by the Tie Inspector, but not along that portion of the road which was under timber license, and on the further understanding that he was to furnish in Jack-pine not more than 10 p.c. of the total quantity of ties required. The prices were as follows:

For Cedar Ties	14 cents
For Tamarack Ties	24 "
For Hemlock Ties	15 "
Jack-pine Ties	21 "

MEMORANDUM OF AGREEMENT made (in duplicate) this 9th day of October, in the year of our Lord one thousand nine hundred and three.

Between *Thomas Wallace*, of the Town of North Bay, in the District of Nipissing, Merchant, hereinafter called "The Contractor," of the first part; and *The Temiskaming and Northern Ontario Railway Commission*, hereinafter called "The Commission," of the second part;

Witnesseth: That in consideration of the mutual covenants and agreements hereinafter contained the parties hereby agree as follows:

1. That the Contractor will deliver to the Commission at such points between the seventy-second and one hundred and twelfth mile of the right of way of the Commission as may from time to time be directed and approved by the Engineer or his agent duly authorized in that behalf (save and except that the Contractor shall not be bound to make delivery at any point on the right of way which runs through lands now subject to Government Timber License) one hundred and thirty-five thousand railway ties made from sound timber of good merchantable quality and in strict compliance in all respects with the specifications hereto annexed, which specifications are hereby made a part of this contract, it being however agreed that should there in any respect be any discrepancy between the said specifications and these presents then the terms of these presents shall govern, and it being further expressly agreed that the Contractor shall not be entitled to supply, nor shall the Engineer or Commission be bound to accept more than ten per cent. of the whole quantity of said ties made from jack-pine, said ties to be delivered and piled completely ready for inspection as follows:—At least sixty-five thousand on or before the first day of March, one thousand nine hundred and four; at least forty thousand additional on or before the fifteenth day of April, one thousand nine hundred and four, and the balance, thirty thousand, on or before the first day of June, one thousand nine hundred and four, or on or before such other dates as on written application of the Contractor for an extension of time the Engineer may in writing substitute for said dates or any of them, time being agreed to be material and of the essence of this contract.

2. That the Contractor will pay in cash for all ties purchased by him from other parties, and shall not directly or indirectly contract for ties for said work the price of which shall be payable either wholly or partly in goods or otherwise than in actual cash.

3. That the Contractor will furnish satisfactory evidence to the Engineer from time to time as requested by the Engineer of his having complied with the provisions of the last preceding clause hereof and as to the land upon which all ties delivered from time to time have been cut, and that the Contractor or other party cutting same had the legal right to cut such ties and dispose of them and that the same are free from all liens and attachments, and until such evidence to the satisfaction of the Engineer is furnished, and until ties from time to time are actually accepted and marked by the Engineer or by his agent in that behalf as aforesaid, the same shall be at the risk of the Contractor.

4. The decision of the Engineer or of his agent in that behalf as to whether the ties conform to and are delivered in accordance with the terms of this contract shall be final and conclusive. Culled ties must be promptly removed from the railway right of way unless same shall be accepted by the Engineer under clause five of the said specifications, in which case they shall be paid for at half price.

5. Government dues, if any, shall be paid by the Commission.

6. If the Contractor shall become bankrupt or insolvent or shall make an assignment for the benefit of his creditors, or shall compound with his creditors or propose any composition to his creditors for the settlement of his debts, or shall attempt to transfer, sub-let or assign this contract or any part thereof without the consent in writing of the Engineer, or if by the report of such Engineer it shall appear that the rate of progress of the said work in the opinion of the Engineer is not such as to ensure the completion of same within the time herein prescribed or within such additional time as may have been granted by the Engineer as aforesaid, or in case no additional time has been granted and the said work has not been completed within the time limited, or in case of additional time being granted as aforesaid, then if the same has not been completed within such additional time, or if the Contractor shall in the opinion of the Engineer (who shall be the sole and absolute judge in that behalf) persist in any course violating the provisions of this contract, the Commission shall have the power and right at its discretion without previous notice and without process of law to take the work or any part thereof out of the hands of the Contractor ,and either re-let the same to any other person or persons with or without previous advertisement, or to employ workmen and provide material, tools and other necessary things at the expense of the Contractor, or to take such other steps as the said Commission may consider necessary in order to secure the completion of the said work, and in any such case the Contractor shall have no claim to any further payment in respect of work performed, but all things done and the means employed under this clause by the Commission shall be as binding on the Contractor as if the things done and the means employed had been done and employed by him under this contract; but the Contractor shall nevertheless remain liable for all loss and damages which may be suffered by the Commission by reason of the non-completion by the Contractor of the work, or by reason of any of the matters aforesaid, which damages shall be deemed to include all salaries or wages which shall be payable to the person or persons superintending the work on behalf of the Commission, and no action or claim shall be raised or made by the Contractor by reason or on account of the ultimate cost of the work so taken over proving greater than in the opinion of the Contractor it should be, and the amount of all such loss shall be computed and ascertained by the Engineer, whose certificate certifying to the amount thereof shall be final and binding upon al parties; but notwithstanding any of the matters

aforesaid the Contractor shall receive credit for all amounts owing to him for the part of the work which he shall have performed, subject, however, to the right of the Commission to deduct therefrom all such losses and damages as aforesaid so certified by the Engineer.

7. Cash payments equal to about ninety per cent. of the value of the ties so delivered and accepted shall be made to the Contractor monthly on the written certificate of the Engineer that such ties have been so delivered and accepted and such evidence furnished as aforesaid, and the said certificate shall be a condition precedent to the right of the Contractor to be paid the said ninety per cent. or any part thereof. The remaining ten per cent. shall be retained until the final completion of the whole work to the satisfaction of the Engineer, and until the Engineer shall be satisfied that all wages of all workmen, labourers and servants of the said Contractor and of all Sub-Contractors under him, as well as the price of all ties purchased by the Contractor from other parties have been duly paid, whereupon the Engineer shall give his final certificate accordingly, and such remaining ten per cent., or the balance payable to the Contractor as found by the Engineer shall be paid to him by the Commission within forty days after the granting of such final certificate, and it is hereby declared that the written certificate of the Engineer certifying to the final completion of this contract as aforesaid shall be a condition precedent to the right of the Contractor to receive or to be paid the said remaining ten per cent. or any part thereof.

8. Should the Contractor not complete the work, notwithstanding any delay or hindrance by the Commission, to the satisfaction of the Engineer on or before the dates aforesaid, or any substituted dates as above provided, he shall, at the option of the Commission, in lieu of liability to pay damages and expenses as provided in the last preceding clause, pay to the Commission by way of liquidated damages the sum of twenty dollars for each day which may elapse after the respective dates or substituted dates as aforesaid before the whole work shall be completely executed to the satisfaction of the Engineer.

9. The Contractor shall not in any way, without the consent in writing of the Engineer first having been obtained, dispose of, assign, sub-let or re-let the work embraced in this contract or any portion thereof.

10. The Commission, in consideration of the premises, hereby covenants with the Contractor that the Contractor from time to time, and in all respects having fulfilled the covenants and agreements herein contained and on the Contractor's part intended to be fulfilled, will be paid on the terms aforesaid for each and every tie delivered and accepted as above as follows: For Cedar ties, fourteen cents; for Tamarack ties, twenty-four cents; for Hemlock ties, fifteen cents, and for Jack-pine ties, twenty-one cents.

11. The word "Contractor" wherever it appears in this contract shall be held to mean and include the Contractor, his heirs, executors and administrators; and the word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control of the work of construction of the said line of railway.

In Witness Whereof this Agreement has been duly signed, sealed and executed by the said Contractor, and duly executed by the said Commission under its Corporate Seal and under the hands of its Chairman and Secretary.

SIGNED, SEALED AND DELIVERED in the presence of (Signed.) IRENE I. DICK.

(Signed) THOS. WALLACE. (SEAL.)

" THE TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION. (SEAL.)

" A. E. AMES, Chairman.

" P. E. RYAN, Secretary.

Unloading Ballast. T. & N. O. Ry.

The Waboose or Rabbit Rock, Rabbit Lake, T. & N. O. Ry.

Steam Shovel Loading Ballast Train, T. & N. O. Ry.

Rock Cut, T. & N. O. Ry.

Montreal River, Where the Railway First Touches it.

Saw Mill at 14th Mile, T. & N. O. Ry.

FIRE RANGING.

A system of fire ranging along the line of construction was adopted by the Commission early in the Spring of 1903, and was put into full force in the month of May. The features of the system were the division of the distance into sections of six miles each, in charge of a Fire Ranger, authorized to call upon all the men on his beat engaged in construction work to assist him in quenching any fires. The Fire Rangers were under the direction and authority of the Crown Lands Department, which appointed them. The Chief Fire Ranger and the Chief Engineer of the Commission worked together in the supervision of the system. Particulars of how the system worked out will be found in the second Annual Report of the Chief Engineer, which appears elsewhere in this report.

TELEGRAPH MATERIAL.

The Chief Engineer called for and received the following quotations for the telegraph material named below:—

Ahearn & Soper, Ottawa. 55 miles No. 8 B.W.G. galvanized telegraph wire to C. P. R. specification, $3.87 per 100 lbs., f.o.b. Port of Montreal, subject to prompt acceptance. DP.DG. insulators, $45 per 1,000. 2 in. oak side blocks, painted, standard, to sample $19.50 per 1,000. 2 in. Locust side blocks, unpainted, standard, to sample, $37 per 1,000, all f.o.b., Ottawa.

The American Steel & Wire Company, Montreal. Telegraph wire, $2.80 per 100 lbs., carload lots. Telegraph wire, $2.85 for less than carload lots, f.o.b. cars, North Bay, in bond. This with duty added brought the price for less than carload lots to $3.41 per 100 lbs.

James Cooper, Montreal. Telegraph wire $3.30 per 100 lbs., f.o.b., North Bay, duty paid. D.P. glass insulators, $3.25 per 100, f.o.b., North Bay. Oak side blocks, $2.16 per 100, f.o.b., North Bay.

The Diamond Glass Company, Limited, Montreal. 2,100 glass insulators, similar to those furnished C. P. R., $3.47 per 100, f.o.b., North Bay.

The order for all the telegraph material indicated above was placed with James Cooper, of Montreal, the lowest tenderer.

REPORT OF MEDICAL DOCTOR.

North Bay, Jan. 13, '04.

P. E. RYAN, Esq.,
Secretary-Treasurer T. & N. O. Railway Commission,
Toronto.

Sir,—I beg to submit my report of medical attendance on the employees from Nov. 1, '02, to Dec. 31, '03.

The general plan of attendance was to supply each camp with a quantity of medicines such as were required for ordinary use for minor ailments, and a supply of bandages, lint and antiseptic dressings for use in case of minor injuries and first aids to the severely wounded. Besides this one of my assistants visited all the camps once a week when it was possible to do so, and attended to all special calls with the least possible delay.

With the exception of an outbreak of small-pox on two occasions and of typhoid fever being prevalent last fall on the north end of the work, we had

no diseases of a contagious or epidemic nature. There were altogether 22 cases of small-pox and no deaths. Good, comfortable isolation camps were furnished by the contractors, who also furnished nurses and provisions for these cases.

During the latter part of the summer there were a large number of cases of scurvy, exclusively among the Italian laborers who boarded themselves. No deaths.

Considering the number of men employed and the hazardous nature of the work there were comparatively few accidents with fatal results, the total number being four killed instantly and two died subsequently.

The total number of cases of all kinds treated in North Bay Hospital was seventy-one, the period of residence in hospital varying from one day to four months. The nature of cases and results were as follows:

Typhoid Fever	9	No. deaths	1
Rheumatism	8	"	0
Pneumonia	2	"	0
Consumption	1	Discharged.	
Blood Poisoning	3	No. deaths	1
Alcoholism	2	"	0
Influenza	4	"	0
Bronchitis	1	"	0
Acute Nephritis	1	"	0
Chronic Nephritis	1	"	left Hospital.
Tonsilitis	1	"	0
Sunstroke	1	"	0
Intermittent Fever	3	"	0
Scurvey	1	"	0
Pleurisy	1	"	0
Nephritic Abscess	2	"	0
Ulcer on leg	2	"	0

Injured:—

1	Head cut and spine injured by falling tree	Partly recovered. Went to Toronto.
1	Side injured by explosion of tin pail in which there was some nitro-glycerine	Recovered.
1	Both hands severely lacerated by explosion	"
1	Severely injured in head and chest by explosion	Died in few hours.
1	Sprained ankle	Recovered.
1	Fractured leg, fell off wagon	"
1	Fractured leg, dynamite explosion	"
1	Eye injured, dynamite explosion	"
1	Arm broken and lacerated, both eyes destroyed, arm amputated, dynamite explosion	Died.
1	Crushed toe	Recovered.
1	Side injured, slight	"
1	Middle finger amputated, account crushed	"
1	Eyebrow cut by a knife in a fight	"
1	Foot burned	"
1	Thigh fractured and leg lacerated, dynamite explosion	In hospital.
1	Face and hand badly burned	"
1	Frozen foot	"
1	Side injured by explosion of tin pail containing nitro-glycerine	Recovered.
1	Foot and ankle crushed by rock falling on it, amputated	"
1	Elbow cut by an axe	"
1	Finger amputated, account crushed	"
1	Knee burned	"
1	Knee cut by an axe, suppuration of joint, operation	"
1	Injured knee	"
1	Foot slightly injured	"
1	Fractured arm, thrown off horse	"

At Boyce Lake Hospital, 24 patients were admitted:—

Typhoid	3	Recovered	3
Rheumatism	5	"	5
Pneumonia	3	"	3
Scurvey	6	"	6
Tuberculosis	2	"	1
Influenza	1	"	1
Bilious fever	1	"	1

Injured:—

1	Left hand and eyes injured by dynamite explosion. Part of little finger and thumb amputated	Recovered
1	Fracture of bones of forearm, struck with a club	"
1	Right hand injured, little finger and part of bone removed	"

At Moose Lake Hospital, 17 patients were admitted:—

Abcess	1	"	1
Cystilis	1	"	1
Neuralgia	1	"	1
Malingerers	3	"	3
Stricture	1	"	1
Tenoritis	1	"	1

Injured:—

1	Contusion of fingers	Recovered.
1	Left hand—thumb blown off, flesh torn off other fingers, wrist and back of hand burned. Recovered use of hand fairly well Right hand—wound extended almost completely around wrist; bones of arm fractured in several places. Refused to have operation. Went to Montreal and had arm amputated	"
1	Knee injured slightly	"
1	Contusion of leg	"
1	Contusion of ankle	"
1	Both eyes destroyed and face burned, dynamite explosion. Went to Montreal	"
1	One eye destroyed and face burned, dynamite explosion. Went to Montreal. Recovered sight in one eye	"
1	Both hands injured, right little finger torn and bones fractured, left index finger cut and bone broken, dynamite explosion.	"
1	Knee cut by an axe. Removed to North Bay Hospital	"

As this report practically covers the work done during the grading and track laying on the first sixty miles of the road, I shall send it in without waiting for Dr. Smith's report from Haileybury. I wrote him as soon as I received your request for report, but as the road was blocked for a week or ten days I expect the letters were delayed in transit. I shall forward his report as soon as it comes.

Yours sincerely,

(Sgd.) A. McMURCHY.

CHIEF ENGINEER'S SECOND ANNUAL REPORT.

North Bay, Ont., January 2nd, 1904.

P. E. Ryan, Esq.,
Secretary-Treasurer, Toronto.

Dear Sir,—I herewith beg to present my Annual Report for the year 1903:

Survey.

In presenting my Annual Report for the year ending December 31st, 1903, I beg to state that at the end of the year 1902 the surveys of this railway were finally completed to the 58th mile (Redwater Lake) with a first location to the 72nd mile (Temagami Lake) and a preliminaryf to the 112th mile, where the line reached Lake Temiskaming. The located part of the line between the 50th mile and the 72nd mile, most of which ran along the West Shore of Rabbit Lake, shewed a profile extremely heavy in quantities with a heavy percentage of solid rock, heavy in gradients and with a sharp

continuous curvature. With the object of reducing this a careful exploration of this portion of the country was commenced in January, 1903, a new line being run some miles inland from Rabbit Lake with good results in every respect. The old line was abandoned and the new line located and revised, which resulted in a big saving in quantities, reduction of grades and better alignment as well as being one mile shorter than the old location. In January, 1903, another party was sent out to the extreme Northern end at New Liskeard to locate South. Both these locating parties were kept in the field, the one working North, the other South, until they met in the month of July. In making this Survey from the 50th mile to the 112th it was necessary to tie three fixed points together by the shortest and best possible route. The first point was Temagami Lake at the 72nd mile where the line touches it at the North-east arm. It was considered advisable to touch this lake with the line of railway for the reason of its being already considerably well known as a resort for tourists, and with the very great prospects of enlarging on this with the advent of the line, as well as bringing a large area of territory in touch with the railway. The deviation necessary to touch this lake from the general direction was also very slight. The second fixed point is a point where the Montreal River could be reached and crossed. This river lies in a valley considerably lower in elevation than the country immediately south of it, and in places were ridges of hills which had to be got through. It was found after careful exploration that the best possible crossing was at the outlet of Bay Lake, an expansion of the Montreal River as well as a comparatively easy descent to it. In fact this was found to be the only point at which the river could be reached from the south and crossed. It is also a very desirable point on the river to tap from the standpoint of trade for the railway, for with a dam at the outlet of Bay Lake where the railway crosses the river is made navigable to small steamers for forty miles. Between this crossing, which is at the 94th mile on the finally located line of railway and Temagami Lake at the 72nd mile, two lines were tried, one by Mountain Lake to the West, the other by Rib Lake to the East. The Mountain Lake route was found to be impracticable and the Rib Lake route was then adopted. The third fixed point was some point on Lake Temiskaming. In order to reach this lake, which lies some four hundred feet lower than the country which the railway had reached to the south of it, it was necessary to bring the line on to the slope to the lake as soon as possible. In order to utilize this side hill to grade down to the lake on, at the 101st mile and about four miles south of a point where the line of railway enters the southern boundary of the Township of Bucke, this slope was reached and eleven miles of the side hill used to give as gradual and easy a grade as possible. This also was found to be the only possible route to bring the railway to the lake A profile of this grade, as well as the grade down to the Montreal River from the south and to Temagami Lake from the south is shewn attached to this Report, these being the ruling gradients on the upper portion of the line.

The maximum grade which it was found necessary to use on the first thirty-two miles of 1.25 per cent. rising north, and 1.00 per cent. rising south, was reduced on the balance of eighty miles to a 1.00 per cent. rising north, and a .75 per cent. rising south, with compensation for all curvatures of .05 per cent. per degree, with advantage taken at some points of introducing steeper momentum grades, the maximum curve being a six degree and easement on all curves over a three degree. The steeper grades being bunched on the first thirty-two miles, where extra power might be used on this portion of the road. This reduction in the grades brought about an increase in the quantities and greater first cost to the road than was first expected.

Especially was this the case with the grades immediately south of Temagami Lake and Montreal River, where the quantities might have been reduced thirty per cent. by the introduction of the steeper grade, but it was considered advisable by the Commission to adopt the higher standard of road in the way of this reduction of these ruling gradients and take the increase in first cost, when it was considered the great yearly saving in the cost of operation for all time to come on these reduced grades would amount to a sum many times more than would pay interest on the increased first cost. These three grades are the ruling gradients on the northern eighty miles, and particular attention and careful revision was given them before allowing grading to proceed at these points. Indeed, every effort has been made in this broken line of country which the line of railway passes through in its entire distance to get the best possible alignment and grade with a minimum of cost, and to attain this end necessitated much expense in exploration and surveys in trying alternative routes, making comparisons of same, and revising the adopted location until it was thought the best possible was obtained. To do this it was also necessary to keep the surveys well ahead of the construction or delay the construction until this had been obtained; but by the wisdom of the Minister of Public Works, and afterwards followed up by the Commission, these surveys were well advanced before any contract was let, and with the start thus obtained were kept well ahead of construction, so that there was practically no delay to the Contractor on this score.

Timber.

The timber along the entire line of this railway ,and miles on each side, is heavy and of great value.

The timber along the line of railway from the southern end to the 103rd mile is a heavy green forest composed of white and red pine, spruce, black, yellow and white birch, cedar, hemlock, balsam and maple, in places all growing together. At the 103rd mile the railway enters the Temiskaming clay belt and the pine becomes scarcer, the timber being principally spruce, balsam, cedar and poplar. From the 48th mile to the 80th mile the railway passes through the Temagami Forest Reserve, where great quantities of pine are to be seen from the railway. On account of the great value of the timber along the line of this railway and for miles on both sides of it it was of the utmost necessity that some extra precaution should be used to prevent the spread of fire off the right of way of the railway. A staff of fire-rangers was spread along the line of railway under construction in the dry season, each ranger having a beat of six miles to cover twice every day. Power was given to each, through the Engineer and contract between the Contractor and the Commission in case of a dangerous fire to call off all the Contractor's men on that particular ranger's beat to fight the fire, the time of the men so employed being paid at the regular schedule of wages. The Crown Lands Department agreed to work conjointly with the Commission in this matter and to pay one-half the expense thereof. The system was found to work admirably and several serious looking fires were checked by this means, notably near the 37th mile in the month of June, when one hundred men fought fire for three days, and another near the 26th mile.

Some of this pine timber thus protected was afterwards sold at public auction by the Government at a handsome figure, the advent of the railway through this territory making it possible to get this timber out to market. In clearing the right of way at places considerable quantities of the pine timber had to be cut. It was carefully skidded and sold by tender. Other timber on the right of way was made into telegraph poles, ties and fence posts.

Minerals.

When the surveys of the railway were commenced it was known that there existed a mineral belt of some considerable extent near Temagami Lake, principally of iron ore. With the railway passing through the belt no doubt development work will commence which was practically impossible before, During the construction of the railway near the 103rd mile mineral deposits were discovered which proved to be nickel ore. The Provincial expert reports these finds of great value. There appears to be little doubt that the northern portion of the railway passes through an exceedingly valuable mineral territory.

Agricultural Lands.

The country through which the railway passes from its southern end to where it enters the Temiskaming clay belt at the 103rd miles is more or less broken, with rocky ridges and numbers of lakes of all sizes scattered almost everywhere along the route. There are patches of agricultural land in places, but the country is principally valuable for its magnificent growth of timber, its minerals and the abundance of game and fish which ought to make it a splendid resort for tourists. From the 103rd mile to the 112th the railway passes through a clay loam territory which is the southern end of the Temiskaming clay belt, and is proven to be as good agricultural land as perhaps exists anywhere in the Province.

Town Sites.

Town sites have been laid out and reserved by the Crown Lands Department along the railway at the 38th mile in the Township of Osborne, where there is a black of flat land capable of being utilized for agricultural purposes, the 72nd mile, Temagami Lake, and the 94th mile, the crossing of the Montreal River and foot of Bay Lake. Sufficient land has been reserved for the railway at these different points, also for station grounds, yard room, etc.

Construction.

The grading, which was well under way at the end of 1902, has made considerable progress, and at the end of 1903 there is a total of seventy-six miles completed, twelve miles of this being from the Northern end South. This leaves a balance of thirty-six miles to be finished this winter and will be completed early next summer. It was found that a great many of the cuttings, which from the surface looked like earth and classified material turned out to be solid bed rock, but with a careful revision at all points these quantities were reduced to a minimum. Temporary structures are thrown up where heavy fills are encountered and where the cutting is insufficient to make the fill these structures are being utilized to make the fill with the train from the ballast pit. On encountering more of this rock than was first anticipated and the expense of handling any more o fthis material than was absolutely necessary, it was also necessary to put in more of these temporary structures than was expected, for the reason that it is much cheaper to put in these structures and fill with train than borrow bed rock. In stream crossings in some cases permanent structures and steel plate girders have been used, and at a number of other crossings permanent wooden structures have been used.

Sidings have been graded about every ten miles apart and two thousand feet in length, which will be sufficient to accommodate about fifty cars with engine, and which should be sufficient for many years to come; extra land has been taken up at each siding for station grounds, yard room, etc.

Track laying was commenced on the 15th of June and continued throughout the summer until the 57th mile was reached in the early part of December, where winter quarters were taken up and which will be the end of the steel till next summer. The rail used weighs eighty pounds per yard, thirty-three feet standard length, with a twenty-six inch four-hole angle-bar connection weighing forty-eight pounds per pair, and a seven-eighth inch cold rolled thread bolt. A nine-sixteenth by six-inch spike is also used and tie-plates placed on all curves of three degrees and over. Spring rail frogs and split-switches are being put down at all permanent sidings. The Contractor is using in connection with this track-laying one engine of about sixty tons and a track-laying machine.

Ballasting was commenced on the 6th of July with three engines of about sixty tons each, one Bucyrus steam shovel, a Barnhart plow and cable and seventy-five flat cars. By the 17th of November thirty-seven miles of ballasting was completed, when the severe frost stopped the work. The Contractor from that time on has turned the force on filling some temporary trestles, quite a number of them having been filled up to the end of the present year, making a solid road-bed .

A telegraph line has been erected as the track was laid and now is completed to the 57th mile. A cross-arm has been placed on each pole, making provision for a second wire when necessary. The pole is also notched to receive a second cross-arm when the service calls for more than two wires.

A woven-wire fence, known as the "Frost" fence, has been erected on the first nine miles and will be completed to the 18th mile next season, to a point where the railway enters the unlocated lands. This will be sufficient fencing at this end for some years to come. About eight miles of the Northern end will also require to be fenced.

The contract called for the completion of sixty miles by the end of 1903, and the balance by the end of 1904. From the above it will be seen that the grading made quite satisfactory progress, being sixteen miles more than was called for. The track-laying, as already stated, reached the 57th mile. The ballasting has not made sufficient progress, and after taking this matter up with the Contractor and pointing out to him the necessity of putting on a bigger force and more plant I have required him to double his force next season, which will mean in place of one steam-shovel and ballast-plow he will have two, and in place of four engines and seventy-five flat cars, there will be eight engines and one hundred and fifty flat cars. Ballasting will also commence six weeks earlier next season on account of everything being in readiness to receive it. If this programme is carried out the road ought to be completed by the end of 1904 and ready for operation.

Every effort has been made in this rough country to bring the ruling gradients down to a minimum, as almost any other error than an excessive ruling gradient can be corrected in time, curves can be flattened, short grades lifter, wooden structures replaced when the life of the timber is reached, but the grades are the life or death of a road that has or expects to have any traffic beyond a meagre minimum. In places wooden structures have been used which will last approximately fifteen years, when they can be replaced by masonry structures if it be then considered desirable to do so.

Yours truly, (Signed) W. B. RUSSEL.

EXPLORATION NORTH OF NEW LISKEARD.

Early in August last, in view of the projection of the Grand Trunk Pacific Railway, the Commission considered the desirability of recommending to the Government a preliminary survey north of New Liskeard, so as to obtain such information as would be necessary to enable the Legislature to judge as to the advisability of extending the railway north to connect with the proposed Grand Trunk Pacific Railway. The Commission had no doubt as to the desirability of extending the road so as to make the connection referred to, as it was felt that such an extension would not only increase the earning capacity of the railway, but would be of material advantage to the Province as well, inasmuch as it would insure for the Province a share of the business of supplying the requirements of the West and of the construction of the Grand Trunk Pacific Railway. The recommendation was accordingly made, and the Commission were authorized by Order-in-Council to proceed with the survey.

Instructions were thereupon issued to the Chief Engineer to arrange for the organization of a small party, under the supervision of a competent Engineer, to be sent out to make a preliminary survey and exploration of the country, the nature of the soil and the forest products which the country obtain such information as was considered necessary to permit of the selection of the best route for an extension of the railway to connect with the proposed Grand Trunk Pacific Railway. Further instructions were given that the route selected should be one which would offer the best grades and curvatures available; and that a full report should be made as to the character of the contains. The report of the Chief Engineer of the result of the survey is given below:—

Survey.

Acting under instructions to explore and survey for an extension of the railway now under construction north through the rich Temiskaming Clay Belt to a point as least as far as a probable junction with the proposed Grand Trunk Pacific Railway, a small party was sent out on the first of August to make a reconnaissance of a route up the Wabis River Valley, the Blanche River Valley, over the height of land and down the White Clay and Black Rivers; and also as a probable alternative route from the valley of the Wabis into the valley of Long Lake to the west and over the height of land towards Night Hawk Lake. The party returned about the middle of September, and from the information obtained it was decided to run a preliminary line through by the valley of the Blanche, as this route offered the easiest gradients and alignment. On the 20th of September a line was started at the terminus of the railway now under construction, and has been carried over the height of land and into the valley of the White Clay River. From the information thus obtained I am able to state that a line of railway can be located on this entire route with a maximum gradient of one-half of one per cent., or twenty-six feet per mile, rising both ways, and a maximum curve of four degrees. A location working to this standard is now in progress, and will be ready for construction in the early spring. The line for the first forty miles to near the foot of Round Lake will be comparatively easy to grade, being mostly light embankment of clay with an occasional ravine from twenty to one hundred feet deep to be crossed.

While this clay flat is at the mouth of the Blanche River from eight to ten feet above the level of the stream it rises gradually until thirty miles up the river it becomes forty to fifty feet above the river level, the river being navigable for small steamers for twenty-five miles from its mouth. From the river bank westerly the clay rises in terraces until it becomes one hun-

dred feet or more above the level of the branches of the Blanche River. Three of these ravines must be crossed by this proposed extension with three steel trestles about five hundred feet long. At the 45th mile and for eight or nine miles some rock is encountered, but north of this again the country becomes a clay flat. A flat summit is also reached at the 67th mile at an elevation of 1,010 feet above mean sea level. Although some rock is also encountered here, and in places sand hills, clay is again met within the valleys of the White Clay and Black Rivers. Although the grading is comparatively light in this proposed extension, an expensive part of the construction of the roadbed ready to receive the rails will be the stream crossings, which, as already stated, lie in deep ravines, having eaten deep into the clay, and in some places are of considerable width. The clearing of the right of way will also be heavy, for although the timber is smaller than the timber on the piece of railway now under construction, it is very thick.

Agricultural Lands.

The one hundred and twelve miles of railway now under construction, as already stated, passes through a territory especially rich in timber, minerals and game, there being only patches of land fit for agricultural purposes, while this proposed extension of eighty or ninety miles passes through a fine clay loam and comparatively flat country of a width of from twelve to twenty miles, and at the northern end enters the great clay belt extending from the boundary line between Ontario and Quebec in a north-westerly direction across the Province some six hundred miles, and containing about 16,000,000 acres of fertile soil. The soil of the Temiskaming clay belt is already so well known for its fertility that it is hardly necessary to make any further comment upon it. It is rapidly becoming settled, cleared and put under crop, the settled having pushed his way as far north as twenty-five miles north of Liskeard, a town of 1,500 inhabitants and the present terminus of the railway. All of this territory lies south of the 49th parallel of latitude, the southern boundary of Manitoba. The winters are cold and steady, but shorter and milder than those of Manitoba, and are free from the sweeping winds of the prairie country. Near Round Lake, about forty miles north of Liskeard, rock shows up through the clay, in some places cliffs one hundred feet high with some small patches of sand, but the greater portion is clay. The summit between the waters of James Bay and of Lake Temiskaming is quite flat. When over the summit the line passes down the valleys of the White Clay and Black Rivers, branches of the Abbittibi River flowing into James Bay, which is also a flat country and of considerable width.

Timber.

The timber growing on the territory passed through by this proposed extension is not so conspicuous for its large growth as that through which the railway now under contract passes, but there is an almost unlimited quantity of pulpwood growing upon it as well as fine cedar and some pine. Tamarack is also very plentiful and will give an abundant supply of ties for the construction.

Minerals.

The prospects of mining development in the broken country to the east of the Temiskaming clay belt, and which would be tributary to this extension, are great, one copper property some ten miles east of the 20th mile on this proposed extension having already been developed to a considerable extent. There are also to be found here slate and building stone of good quality and in considerable quantity. Many other economic minerals are found in this district.

(Sgd.) W. B. RUSSEL,
Chief Engineer.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

	Per annum.
A. E. Ames, Chairman, Honorarium	$1,000 00
Edward Gurney "	1,000 00
B. W. Folger "	1,000 00
M. J. O'Brien "	1,000 00
F. E. Leonard "	1,000 00
P. E. Ryan, Secretary-Treasurer	2,000 00
	Per month.
D. F. Thomson, Counsel, to Sept. 1st, 1903, $300 per month; from Sept. 1st to Dec. 31st 1903	200 00

EMPLOYEES OF COMMISSION.

(Office of Secretary-Treasurer.)

H. W. Pearson, Accountant, to November 1st, 1903, $80.00 per month; from Nov. 1st to December 31st, 1903	100 00
Stenographer	33 33

Office of Chief Engineer.

W. Ryan, Secretary	90 00
Chas Ferguson, Stenographer	35 00
Mrs. Fay, Caretaker	9 00

ENGINEERS AND STAFFS ON CONSTRUCTION.

W. B. Russel, Chief Engineer (during construction)	250 00
E. E. Perrault, Chief Engineer (during construction	150 00
F. E. Blauchet, Draughtsman	65 00
F. W. Pearson, Assistant Draughtsman	90 00
Alex. Allison, Steel Checker	40 00
S. W. Allison, Tie Inspector	75 00
Chas. Ridler, Teamster	40 00

Section 6.

C. L. Russel, Engineer-in-charge	100 00
G. A. Butler, Rodman	45 00
H. Carr, Axeman	40 00
James Higgerty, Timekeeper	40 00
H. C. Carr Axeman	40 00
P. Goulet, Cook	45 00
A E. Trowse, Pile Inspector	40 00

Section 7.

C. W Doherty, Engineer-in-charge	100 00
L. T. Martin, Rodman	45 00
H. H. Hogarth, Axeman	35 00
J. W. McDowell, Timekeeper	35 00
Leonard Dells, Cook	45 00

Section 8.

F. C. Jackson, Engineer-in-charge	100 00
A. A Campbell, Rodman	45 00
W. J. Loudon, Timekeeper	40 00
M. Horn, Tapeman	35 00
Chas. Davies, Cook	45 00

DIVISIONAL ENGINEER, LAND LINES, ETC.

Robert Laird, Divisional Engineer	150 00
W. R. Maher, Transitman	95 00
A. N O'Kelly, Rodman	45 00
W. H. McDonell, Timber Inspector	45 00

TRACK CENTRES, BALLAST PITS, ETC.

R. H. Harcourt, Engineer-in-charge	80 00
A. E. Carr, Rodman	45 00
Geo. Mitchell, Repairing wire, etc	55 00
Jno. Tierney, Assisting Wireman (per day)	1 75

Montreal River Section.

A. McGougan, Engineer-in-charge	100 00
L. W. Reade, Rodman	40 00
R. Sunstrum, Tapeman	40 00
J. W. Merrifield, Axeman	40 00
V. Fortier, Timekeeper	35 00
Fred. Hooper, Cook	45 00

Haileybury Section.

R. A Galbraith, Divisional Engineer	$150 00
R. Simpson, Assistant Engineer	75 00
A. Sunstrum, Rodman	50 00
A. McDougall, "	50 00
T. Bangs, Inspector Concrete	75 00
A. Black, Force Report	40 00
James McKay, Axeman	40 00
T. Both, Axeman	40 00
A. King, Axeman	40 00
A. L. Whiteley, Cook	45 00

TELEGRAPH CONSTRUCTION (UNDER CARROLL).

T. D. Carroll, Superintendent	75 00
R. Alderson, Laborer (per day)	1 75
Peter James, Laborer (per day)	1 75
A. Fredriken, Laborer (per day)	1 75
A. Harborman, Laborer (per day)	1 75
E. Erickson, Laborer (per day)	1 75
T. Bourke, Laborer (per day	1 75
D. Rourke, Laborer, (per day)	1 75
F. O'Connor, Laborer (per day)	1 75
Bert. Taylor Laborer (per day)	1 75
D. Turner, Laborer (per day)	1 75
H. Metcalf, Laborer (per day)	1 75
E. Bourke, Laborer (per month)	35 00

TELEGRAPH CONSTRUCTION (UNDER J. JUDGE).

John Judge, Superintendent	100 00
M. Nelan, Laborer	35 00
Dan McDonald, Laborer	35 00
Simon Hays, Laborer	35 00
Alex. Urquhart, Laborer	35 00
Wesley Rancier, Laborer	35 00
Walter Fountain, Laborer	35 00
Fred. Gallagher, Laborer	35 00
Jas. Bourke, Laborer	35 00
M. McDonald, Laborer	35 00
Thomas McDonald, Laborer	1 75
H. McGillvray, Laborer	35 00
A. McNeil, Laborer	35 00
Martin Casey, Laborer	35 00
Peter James, Laborer	35 00
James Hickey, Laborer	35 00
Herb. Muleay, Laborer	35 00
M. Roche, Laborer	35 00
Thos. Pigeon, Cook	45 00

ENGINEERS AND STAFF ON EXPLORATION.

T. S. Hay, Engineer in charge	$125 00
W. J Clifford, Transit	100 00
J. M. Bourke, Leveller	75 00
Allan McDougall, Rodman	40 00
F. Kenning, Chainman	40 00
M. O'Malley, Chainman	40 00
Chas. Misner, Chainman	40 00
James McLean, Picketman	40 00
E. Moore, Axeman	40 00
H. Moore, Axeman	40 00
A. Willson, Axeman	40 00
Geo. Netherton, Axeman	40 00
A. Sawyer, Packer	45 00
J. Peters, Packer	40 00
E. F. Manes, Packer	40 00
L. Sojser, Cook	50 00
F. Pillsworth, Cook	50 00
C. Fraser Cookee	40 00
Geo. Clarke, Cookee	40 00

ENGAGED IN REVISION OF LOCATION BETWEEN 50TH AND 112TH MILES, FROM JANUARY 1ST, TO JULY 31ST, 1903.

FIELD UNDER LAIRD.

Robert Laird, Engineer in charge	$150 00
W. R. Maher, Transitman	95 00
F. W. Pearson, Leveller	60 00
A. N. O'Kelly, Topographer	45 00
A. Trowse, Rodman	40 00
James Higgerty, Chainman	40 00
J. P. Howe, Chainman	40 00
A. Wattie, Packer	40 00
Moses McSourley, Picketman	40 00
H. Dawson, Topographer's Rodman	40 00

J. Sunstrum, Axeman	40 00
R. Sunstrum, Axeman	40 00
S. DeBaire, Axeman	40 00
P. O'Connor, Packer	40 00
T. Petraut, Packer	40 00
Geo. Friday, Packer	40 00
Con. McGrath, Packer	40 00
G. Gilray, Cook	50 00

FIELD UNDER T. S. HAY.

T. S. Hay, Engineer in cnarge	125 00
W. J. Clifford, Transitman	100 00
J. M. Bourke, Leveller	75 00
Alex. Sunstrum, Topographer	50 00
H. Scully, Rodman	40 00
P. A. Laing, Chainman	40 00
P A. Laing, Chinaman	40 00
E. Scarlett, Assistant Topographer	40 00
H. Lamon, Picketman	40 00
Alex. King, Axeman	40 00
Thos. Walker, Axeman	40 00
Wm. Fiddler, Packer	40 00
Larry Devine, Packer	40 00
W. Merrifield, Axeman	40 00
Thos. Pigeon, Cook	50 00
Geo. Carr, Commissariat	50 00

STATEMENT No. 1.

Accounts contracted in 1902 but received and paid in 1903.

1902.

Item.	July.	August.		September.		October.		November.		December.		Total.
	Construction.	Location.	Construction.	Location.	Construction.	Location.	Construction.	Location.	Construction.	Location.	Construction.	
Sundries	$4 80	$16 51	$12 00	$39 07	.....	$11 91	$20 55	$5 15	$64 71	$181 23	$445 05	$800 98
Ties	.....	.....	.....	.....	.....	.....	.....	.....	122 65	.....	134 03	256 68
Legal Expenses	90 00	.....	290 00	.....	189 27	.....	171 91	.....	77 33	.....	141 58	960 09
Office Expenses	.....	.....	98 30	.....	.....	.....	8 40	.....	49 66	.....	112 70	269 06
Supplies	4 00	.....	2 05	.....	.....	6 45	.....	.....	49 04	96 50	334 50	492 94
Total	$99 20	$16 51	$402 35	$39 07	$189 27	$18 36	$200 86	$5 15	$363 39	$277 73	$1,167 86	$2,779 75

STATEMENT No. 2.

Distribution of Expenditure for year ending December 31st, 1903.

Item.	January.		February.		March.		April.		May.		June.	
	Location.	Construction.	Location.	Construction.	Location.	Construction.	Location.	Construction	Location.	Construction.	Location.	Construction
Sundries	478 64	778 28	362 65	612 28	125 [illegible]5	335 74	167 60	810 64	496 18	1,416 78	28 65	1,515 07
Bank Interest	.....	438 17	.....	899 7[illegible]	.....	1,275 78	.....	1,744 65	.....	2,399 42	.....	3,312 70
Pay Rolls	1,559 [illegible]	2 050 80	1,584 33	2,235 [illegible]7	1,635 29	2,322 58	1,790 25	2,071 56	1,534 84	2,131 28	1,672 [illegible]8	2,331 15
Engineers' Construction	.....	75,139 83	.....	87,448 97	.....	90,290 71	.....	127,576 44	.....	114,702 39	.....	98,973 50
Ties	.....	3,684 43	.....	6,931 93	.....	14,507 00	.....	8,573 83	.....	9,615 07	.....	6,839 20
Telegraph Line	.....	192 90	.....	204 01	.....	1,285 57	.....	932 31	.....	1,498 29	.....	802 25
Fencing	.....	82 25	.....	54 27	.....	.....	.....	.....	.....	.....	.....	57 10
Legal Expenses	.....	304 06	.....	325 97	.....	386 99	.....	539 52	.....	386 9[illegible]	.....	488 16
Office Expenses	.....	419 34	.....	424 64	.....	406 [illegible]2	.....	645 [illegible]0	.....	710 17	.....	3[illegible]5 67
General Expenses	.....	820 16	.....	781 52	.....	752 68	.....	687 97	.....	846 83	.....	724 18
Supplies	83 93	676 96	291 49	4,057 95	418 82	1,[illegible]58 [illegible]1	144 38	505 18	468 54	474 3[illegible]	186 76	504 93
Right-of-Way	.....	.....	.....	.....	.....	6,480 50	.....	3,000 00	.....	.....	.....	1,348 80
Rails and Fastenings	.....	.....	.....	.....	.....	.....	.....	1,710 00	.....	8,099 [illegible]1	.....	190,087 92
Switches and Frogs	.....	.....	.....	.....	.....	.....	.....	.....	.....	28 50	.....	3,444 [illegible]7
Tracklaying	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,196 48
Ballasting	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Incidentals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rolling Stock	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Freight Shed	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	2,122 03	84,587 18	2,238 47	103,977 01	2,179 36	119,201 78	2,102 23	148,797 50	2,499 56	142,309 05	1,887 49	312,991 78

(*Continued on page* 48.)

STATEMENT No. 2.—*Continued from page 47.*

Distribution of Expenditure for year ending December 31st, 1903.

Item.	July.		August.	September.	October.	November.	December.	Total.
	Location.	Construction.	Construction.	Construction.	Construction.	Construction.	Construction.	
Sundries	132 30	1,416 20	1,274 90	1,225 98	640 60	292 81	1 65	12,208 50
Bank Interest	.....	4,160 45	4,937 87	6,186 72	7,350 1	4,639 11	1,067 60	38,412 98
Pay Rolls	1,569 22	2,107 41	2,572 60	2,555 19	2,918 65	2,732 67	27722 83	40,098 16
Engineers' Construction	.....	126,497 14	95,241 88	95,675 18	89,746 24	78,162 84	77,072 67	1,156,527 79
Ties	.....	8,557 68	687 07	363 16	212 68	2,387 88	3,064 55	66,425 18
Telegraph Line	.....	756 26	652 25	687 31	828 8	734 18	915 43	9,489 57
Fencing	.....	2,611 77	1,267 20	759 72	590 40	97 20	283 40	5,403 31
Legal Expenses	.....	495 34	413 50	328 0	380 90	412 40	237 40	4,699 09
Office Expenses	.....	404 58	430 86	400 95	385 -	407 05	342 98	5,342 71
General Expenses	.....	1,439 81	3,938 52	2,219 01	802 54	738 82	714 47	14,466 81
Supplies	1 20	1,688 44	1,123 87	1,413 95	909 8	.....	50 84	14,159 43
Right-of-Way	.....	.....	.....	.....	.....	.....	.....	10,829 30
Rails and fastenings	.....	10,965 3	105,347 60	1,730 50	2,542 50	4,297 65	1,323 96	326,103 03
Switches and frogs	.....	.....	9 50	.....	1,141 95	35 00	1,204 50	5,864 12
Tracklaying	.....	2,791 70	3,401 61	4,849 55	3,736 04	3,403 57	200 89	20,579 84
Ballasting	.....	5,850 00	6,300 00	13,088 56	9,095 94	3,265 20	.....	37,599 79
Incidentals	.....	57 50	17 50	.....	.....	.....	.....	75 00
Rolling Stock	.....	.....	.....	4,126 12	154 45	204 49	69,304 50	73,789 56
Freight Shed	.....	.....	.....	.....	1,377 55	.....	.....	1,377 55
Total	1,702 72	169,799 41	227,615 59	135,210 74	122,815 39	101,810 96	158,603 27	1,842,451 62

STATEMENT.

Shewing total expenditure to December 31st, 1903.

Item.	1901	1902.		1903.			Total.
	Location.	Location.	Construction.	Location.	Construction.	Exploration.	
Sundries	1,308 93	3,389 04	2,000 37	2,045 14	10,964 34	415 65	20,123 47
Pay Rolls	6,413 88	13,874 00	4,322 48	11,345 47	28,752 59	3,552 49	68,260 91
Supplies	2,900 31	5,010 60	2,930 63	1,691 62	12,960 75	1,873 04	27,366 95
Office Expenses	35 15	1,755 79	692 31		5,611 77		10,495 02
General Expenses			3,200 73		14,466 81		17,667 54
Legal Expenses		714 00	1,442 00		5,659 18		7,815 18
Engineers' Construction			113,440 81		1,156,527 79		1,269,968 60
Right-of-way			1,571 00		10,829 30		12,400 30
Ties			570 00		65,681 86		66,251 92
Telegraph Line			86 63		9,489 57		9,576 20
Fencing			93 60		5,403 31		5,496 91
Cordwood			927 00				927 00
Bank Interest			168 95		38,412 98		38,581 93
Rails and fastenings					326,103 03		326,103 03
Switches and frogs					5,864 12		5,864 12
Tracklaying					20,579 84		20,579 84
Ballasting					37,599 79		37,599 79
Incidentals					75 00		75 00
Rolling Stock					73,789 56		73,789 56
Freight Shed					1,377 55		1,377 55
					1,830,149 14		2,020,320 82
Less Proceeds sale of Cordwood					228 40		228 40
Total	10,658 27	24,743 43	133,846 57	15,082 23	1,829,920 74	5,841 18	2,020,092 42

Summary.

Location	50,483 93
Construction	1,888,609 20
Exploration north of New Liskeard	5,841 18
Rolling Stock	73,789 56
Freight Shed	1,377 55
Total Expenditure to December 31st, 1903	**$2,020,092 42**

STATEMENT No. 3.

Shewing expenditure on account of exploration north of New Liskeard, authorized by Order-in-Council dated August 19th 1903.

Item.	August.	September.	October.	November.	December.	Total.
Sundries	92 80	203 50	59 70	58 40	1 25	415 65
Pay Rolls ..	350 00	466 97	1,043 26	893 06	799 20	3,552 49
Supplies	172 60	1,152 75	335 14	212 55	.....	1,873 04
Total ...	615 40	1,823 22	1,438 10	1,164 01	800 45	5,841 18

RECAPITULATION.

Statement No. 1	$2,779 75
Statement No. 2	1,842,451 62
Statement No. 3	5,841 18
Refund to Government (see Statement No. 1. Commission's 1st Annual Report).....	24,747 28
	1,875,819 83

CR.

By overpayment to Contractor in 1902	2,660 85	
By proceeds sale of cordwood	228 40	
		2,889 25
Total expenditure during year ended Dec. 31st, 1903		1,872,930 58

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